

The Managed Phaseout of High-emitting Assets

HOW TO FACILITATE THE EARLY
RETIREMENT OF HIGH-EMITTING
ASSETS AS PART OF A JUST
TRANSITION TO A NET-ZERO WORLD

JUNE 2022



GFANZ

Glasgow Financial Alliance for Net Zero

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BLACKROCK (WORKSTREAM CO-LEAD)

CITI (WORKSTREAM CO-LEAD)

BANCO ESTADO

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DEUTSCHE BANK

GOLDMAN SACHS

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IMPORTANT NOTICE

This document is an initial report produced by the Glasgow Financial Alliance for Net Zero (“**GFANZ**”) which sets out Managed Phaseout as a stakeholder-engaged, net zero-aligned strategy for the early retirement of high-emitting assets (the “**Report**”). For the avoidance of doubt, nothing express or implied in this Report is intended to create legal relations and this Report does not create legally enforceable obligations.

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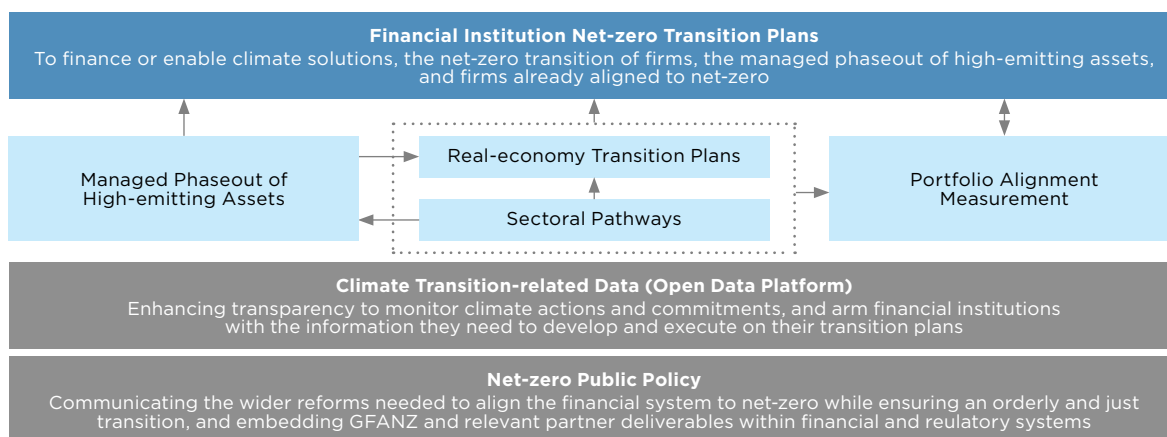
GFANZ members have signed up to the ambitious commitments of their respective subsector alliances and are not automatically expected to adopt the principles and frameworks communicated within this Report, although we expect all members to increase their ambition over time.

Background on GFANZ Work Program

The Glasgow Financial Alliance for Net Zero (GFANZ) is a global coalition of financial institutions committed to accelerating the transition to a net-zero global economy. GFANZ brings together seven financial sector net-zero alliances, representing more than 500 members, into a

pan-sector global strategic alliance to address shared challenges and elevate best practices across the sector.¹ GFANZ has three core areas of work in 2022, with seven workstreams led by financial sector practitioners and advised by leading technical civil society organizations.

GFANZ 2022 TRANSITION PLANNING WORK PROGRAM*



Key: → Indicates that one is a reference for or input into the other

*Illustration does not depict the workstream on Mobilizing Capital which focuses on accelerating capital allocation in support of the net-zero transition in Emerging Markets and Developing Economies (EM&DEs)

BUILDING BLOCKS OF THE NET-ZERO FINANCIAL SYSTEM

External standard-setting and disclosure requirements (e.g., TCFD, ISSB, SEC, EFRAG)	Science and industry-based pathways (e.g., IPCC, IEA, OEMC, MPP)	Nationally Determined Contributions (NDCs) and country climate plans	Real economy corporate net-zero targets/implementation
Net-zero measurement/accounting (e.g., PCAF, GHG Protocol)	Taxonomies and classification systems	Carbon markets and related infrastructure (e.g., CCPs)	Other climate-aligned policy and regulation

¹ The alliances are the Net Zero Asset Managers initiative, the Net-Zero Asset Owner Alliance, the Net-Zero Banking Alliance, the Net Zero Financial Service Providers Alliance, the Net-Zero Insurance Alliance, the Net Zero Investment Consultants Initiative, and the Paris Aligned Investment Initiative.

The elements of the GFANZ work program are all connected and intended to collectively support financial institutions' net-zero transition planning and implementation efforts.

For the provision of finance to be aligned with net-zero goals, financial institutions need to understand and evaluate the transition strategies of their clients and portfolio companies. GFANZ's work on real-economy transition plans will support this by delineating the financial sector's expectations for real-economy firms' transition plans to ensure that they include specific, consistent information that financial institutions can use in decision-making.

Sectoral pathways help inform transition strategy development for both real-economy firms and financial institutions, providing information on the alignment of real-economy activities with net-zero objectives.

Portfolio alignment metrics contribute to methodologies for evaluating the alignment of financial portfolios with net-zero objectives.

One approach to net zero-aligned finance is financing or enabling the early retirement of high-emitting assets, informed by sectoral pathways. The GFANZ work on Managed Phaseout sets out preliminary thinking and a work plan to support the use of early retirement as part of net-zero transition planning for both financial institutions and real-economy firms.

In addition, GFANZ will help lead the recently announced Climate Data Steering Committee which will develop recommendations on how to capture and build centralized, comprehensive, open data to accelerate the net-zero transition.²

This work will bring transparency and accountability to company net-zero commitments and improve the capabilities of financial institutions to develop and execute on net-zero transition plans.

Given the potential for greenwashing of business-as-usual financing activities, financing for high-emitting companies and assets should be vigorously scrutinized to ensure net-zero alignment. GFANZ's program of work will strengthen the guardrails here and help clarify what financing is truly in furtherance of the net-zero transition, including by: issuing guidance on transition plans, sectoral pathways, managed phaseout, and portfolio alignment measurement; advocating for more ambitious climate policy from governments; and increasing the accessibility of climate transition data, including better information on transition-related capital allocation, through a new open data platform. However, GFANZ also recognizes the need for other actors in the ecosystem to contribute to this effort, including through more granular and fit-for-purpose sectoral pathways; higher-ambition public policy (e.g., climate disclosure including of transition plans, taxonomies, and clarity on national plans to transition specific sectors to net zero); higher-ambition action by the real economy (e.g., accelerated uptake of emerging technologies, adoption of robust transition plans); and the development of relevant methodologies and accounting practices (e.g., insured emissions and disclosure of relevant assumptions).

2 Source: GFANZ. [Press Release](#), June 2022.

Executive Summary

TO LIMIT GLOBAL AVERAGE TEMPERATURE INCREASES TO 1.5 DEGREES C ABOVE PRE-INDUSTRIAL LEVELS AND THEREBY AVOID THE MOST SEVERE CONSEQUENCES OF CLIMATE CHANGE, MANY GOVERNMENTS, BUSINESSES, AND FINANCIAL INSTITUTIONS HAVE COMMITTED TO ACHIEVING NET-ZERO GREENHOUSE GAS ("GHG") EMISSIONS BY 2050 AT THE LATEST.

This involves developing new no/low-GHG emissions assets, decarbonizing existing high-emitting sectors, and the potential **early retirement of a significant amount of high-emitting assets**. High-emitting assets can pose both climate risks and the financial risk of being stranded by the transition to a net-zero economy. These include assets that span every sector, from power plants to planes and ships, and play a central role in today's global economy.

To succeed in a 1.5 degrees C-aligned transition, financial institutions have an important role to play in financing decarbonization of the economy. Many financial institutions (lenders, equity investors and insurers) have been hesitant to provide finance to high-emitting assets, even when the objective is to reduce GHG emissions through early retirement.

This Report proposes "Managed Phaseout" as a **net zero-aligned approach** for the operation and financing of a high-emitting asset with clear commitments around its retirement. This Managed Phaseout approach may also form part of a company's strategy, where it operates high-emitting assets, in support of an orderly³ and just⁴ transition.

Importantly, the development of a Managed Phaseout approach for high-emitting assets provides an alternative to companies and financial institutions to withdrawing finance (i.e., divesting) from these assets. While withdrawal of finance can encourage decarbonization, it **can also potentially have the unintended consequence** of prolonging the life of high-emitting assets and even worsen their GHG emissions profile if they are transferred to those with less climate ambition, disclosure, or scrutiny. Many high-emitting assets also need to be operated and financed in the near term while technologies to replace them are deployed. These consequences may be particularly pertinent in emerging markets and developing economies (EM&DEs). A responsible approach for net zero-committed financial institutions and companies is to manage down the GHG emissions from their portfolios, not pass them to someone else.

3 GFANZ uses the term "orderly transition" to refer to a net-zero transition in which both private sector action and public policy changes are early and ambitious, thereby limiting economic disruption related to the transition (e.g., mismatch between renewable energy supply and energy demand). The [Network for Greening the Financial System](#) (NGFS), which develops climate scenarios used by regulators and others, defines "orderly scenarios" as those with "early, ambitious action to a net zero CO₂ emissions economy," as opposed to disorderly scenarios (with "action that is late, disruptive, sudden and / or unanticipated"). In an orderly transition, both physical and transition climate-related risks are minimized relative to disorderly transitions or scenarios where planned GHG emissions reductions are not achieved.

4 See Box B for more detail on just transition in the context of Managed Phaseout.

Managed Phaseout can have several benefits as an approach that are drawn out in this Report:

- support an **orderly transition**;
- mitigate **financial marginalization** for companies with high-emitting assets but credible transition plans;
- allow financial institutions to **stay engaged** with companies in high-emitting sectors and support them through their transition to net-zero; and
- draw in broader stakeholders in support of a **just transition** and **continuity of critical services**.

As well as setting out the Managed Phaseout approach, this Report provides a preliminary and high-level **approach to support the identification of assets** where Managed Phaseout could be appropriate as a net-zero strategy; offers an initial overview of **potential financial mechanisms** that could support Managed Phaseout; and includes initial guidance on the **features of a credible asset-level Managed Phaseout plan**.

In addition to further developing these three elements, this Report identifies the need for:

- forward-looking **metrics and targets** tailored to Managed Phaseout in order to assess ambition and progress on this specific approach to transitioning to net zero;

- accommodation of financing high-emitting assets in financial institutions' **financing policies and conditions** where a net zero-aligned strategy, such as Managed Phaseout, is in place;
- credible **transition pathways** for high-emitting sectors (incorporating sectoral and regional specificity) and the ability to map these to a net zero-aligned asset-level operating life;
- tools to help companies and financial institutions **identify** those assets that may need to be retired early to be consistent with the transition to net zero;
- guidance on **financing mechanisms** that can support Managed Phaseout plans; and
- strong **public policy** steers to support Managed Phaseout as an approach, such as through clarity on policies in support of a country's own net-zero objectives.

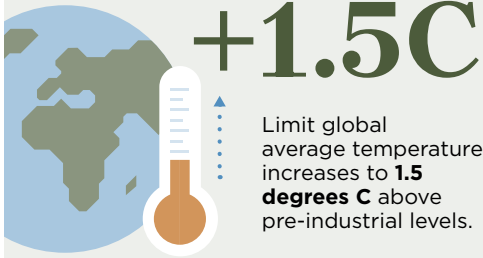
The Report sets out **nine actions** GFANZ will take forward, in collaboration with partner organizations, that would build on this initial thinking and address the needs identified in order to establish Managed Phaseout as a credible net zero-aligned strategy to support the decarbonization of the global economy.

ACTIONS TO UNLOCK MANAGED PHASEOUT

A CREDIBILITY AND INCENTIVES	1	Establish expectations of a Managed Phaseout approach.
	2	Capture Managed Phaseout in transition planning guidance and pathway development for financial institutions and corporates.
	3	Ensure there are metrics and targets for Managed Phaseout that support reduction in GHG emissions.
B DEVELOPING FINANCING	4	Develop guidance on financing mechanisms .
	5	Innovate beyond existing financing mechanisms.
C IDENTIFYING RELEVANT ASSETS	6	Develop framework to identify assets relevant for Managed Phaseout.
	7	Support development of tools to identify assets relevant for Managed Phaseout.
D MOBILIZING HIGH-IMPACT PROJECTS	8	Incorporate Managed Phaseout in country platforms to catalyze private finance to support climate objectives in emerging markets and developing economies.
	9	Set out public-policy actions that can support Managed Phaseout as part of economy-wide decarbonization.

The Managed Phaseout of High-emitting Assets

THE OBJECTIVE



THIS INVOLVES...



developing new, **no/low emission** assets.



decarbonizing existing high-emitting sectors.



The **early retirement** of a significant amount of high-emitting assets.

Governments, businesses and financial institutions have committed to achieving **net zero-carbon emissions** by 2050 at the latest.

HIGH-EMITTING ASSETS

High-emitting assets provide important functions across many sectors including:



INDUSTRY



BUILDINGS



AUTO

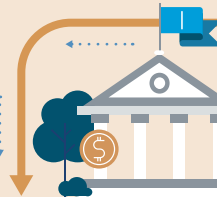


AIR TRAVEL

FINANCING EARLY RETIREMENT

Financial institutions and companies need an approach to high-emitting assets that can support near term provision of key services but meet the imperative of early retirement.

The responsible approach is to manage down the emissions from portfolios, not pass them to someone else.



MANAGED PHASEOUT IS A STAKEHOLDER-ENGAGED, NET ZERO-ALIGNED STRATEGY FOR THE EARLY RETIREMENT OF HIGH-EMITTING ASSETS

WHAT ARE THE BENEFITS OF THIS APPROACH?



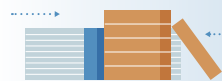
Promotes an **orderly transition**.



Can **draw in broader stakeholders** to support just transition and continuity of service.



Financial institutions stay engaged with companies in high-emitting sectors and support them through the net-zero transition.



Mitigate financial marginalization for companies with high-emitting assets but credible transition plans.

ESTABLISHING MANAGED PHASEOUT AS A NET-ZERO APPROACH



Develop forward-looking **metrics and targets**.



Create **tools to help identify** assets that may need to be retired early.



Integrate Managed Phaseout in **financing policies** and conditions.



Develop guidance on **financing mechanisms**.



Ensure credible **transition pathways** for high-emitting sectors.



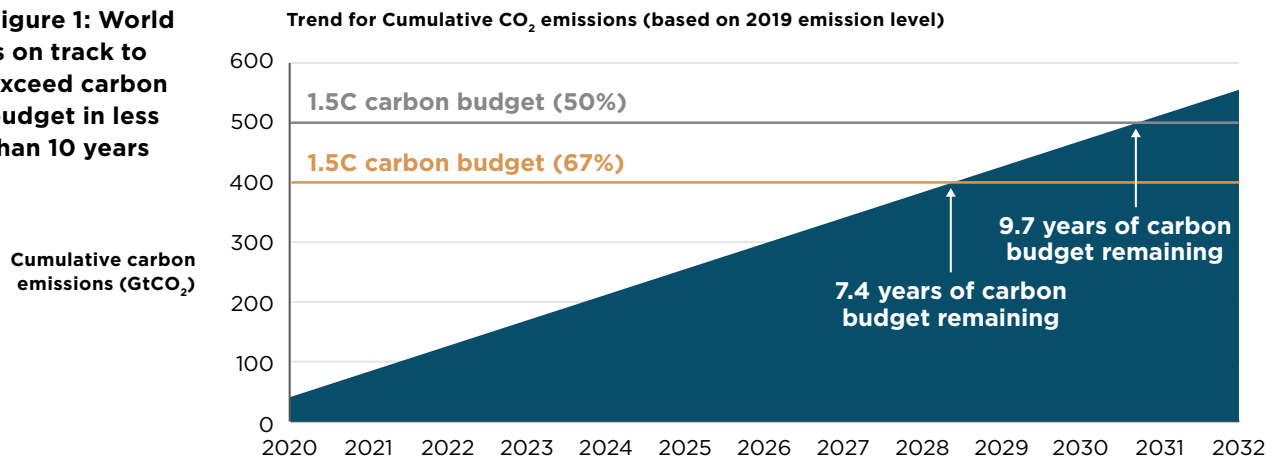
Public Policy steers to support Managed Phaseout.

1. Decarbonization and the phaseout of high-emitting assets

GOVERNMENT, CORPORATE AND FINANCIAL SECTOR COMMITMENTS TO MITIGATE CLIMATE CHANGE AND SECURE NET-ZERO TRANSITION BY 2050 IMPLY SIGNIFICANT DECARBONIZATION IN COMING YEARS.

To limit global warming to 1.5 degrees C, and thereby avoid the most severe consequences of climate change, global GHG emissions would need to remain within a small carbon budget and trend to net zero.⁵ According to the Intergovernmental Panel on Climate Change's (IPCC) sixth assessment report (AR6), the world has a remaining budget of 510 GtCO₂—less than ten years of current emissions—for a 50% chance of limiting warming to 1.5 degrees C (Figure 1).⁶

Figure 1: World is on track to exceed carbon budget in less than 10 years



Source: IPCC. Climate Change 2021: The Physical Science Basis

Note: Years remaining from end-2021, where 2021 emissions assumed to revert to 2019 level

⁵ Carbon budgets represent the maximum emissions consistent with limiting global warming to levels such as 1.5 degrees C. They are based on the relationship between warming that will occur and cumulative GHG (e.g., carbon dioxide) emissions.

⁶ Source: IPCC. Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, 2021.

GOVERNMENTS AND BUSINESSES GLOBALLY ARE COMMITTED TO ACHIEVING NET ZERO.

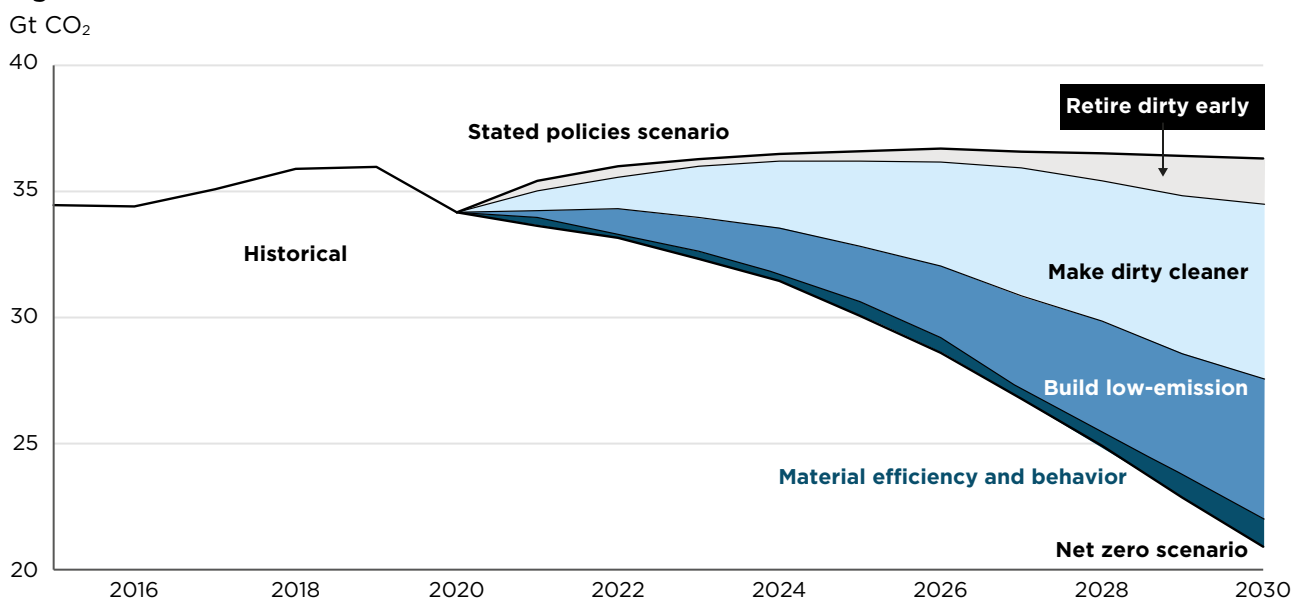
The fundamental objective of the Glasgow Climate Pact, agreed upon by over 190 countries at COP26, is to limit global warming to 1.5 degrees C.⁷ A total of 128 countries, representing 90% of global GDP, have made commitments to net zero.⁸ Alongside governments, over 5,000 businesses have also committed to the goal of net zero through the UNFCCC Race to Zero.⁹

Achieving our climate goals will require a whole-economy transition. To minimize disruption to economies and livelihoods and maintain societal support for the net-zero transition, the sequencing of the transition is critical. According to the International Energy Agency (IEA), there are four elements to transition the economy (Figure 2):¹⁰

- (1) Making use of materials efficiency improvements (e.g., lightweight materials) and behavior changes.
- (2) Build new, low-emitting assets (“build low-emission”).
- (3) Significantly decarbonize some high-emitting assets (“make dirty cleaner”).
- (4) Phase out some high-emitting assets before the end of their normal operating lives (“retire dirty early”).¹¹

This Report is focused on the rationale and mechanisms for the fourth element, “retire dirty early”.

Figure 2: What the world needs to achieve net zero



Source: IEA. CO₂ emissions reductions by type of measure in Net Zero versus Stated Policies Scenarios, 2015-2030, 2021

7 1.5 degrees C above pre-industrial levels.

8 Source: [Net Zero Tracker](#). Overview of the 2,000 largest publicly traded companies in the world by revenue, 2022.

9 Source: [Race to Zero](#), a global campaign to rally leadership and support from businesses, cities, regions, and investors for a healthy, resilient, zero-carbon recovery that prevents future threats, creates decent jobs, and unlocks inclusive, sustainable growth. 2022.

10 Source: IEA. [Emissions reductions by type of measure in Net Zero versus Stated Policies Scenarios, 2015-2030, 2021](#). Note: the more rapid “build low emissions” occurs, the more rapid “retire dirty early” can/will occur.

11 There may be many reasons why an asset could cease to operate within its designed life (e.g., economics of operation, demand for product/service, and competing technologies).

A SIGNIFICANT AND GROWING SHARE OF THE GLOBAL FINANCIAL SECTOR IS ALSO INCREASINGLY COMMITTING TO THE NET-ZERO TRANSITION.

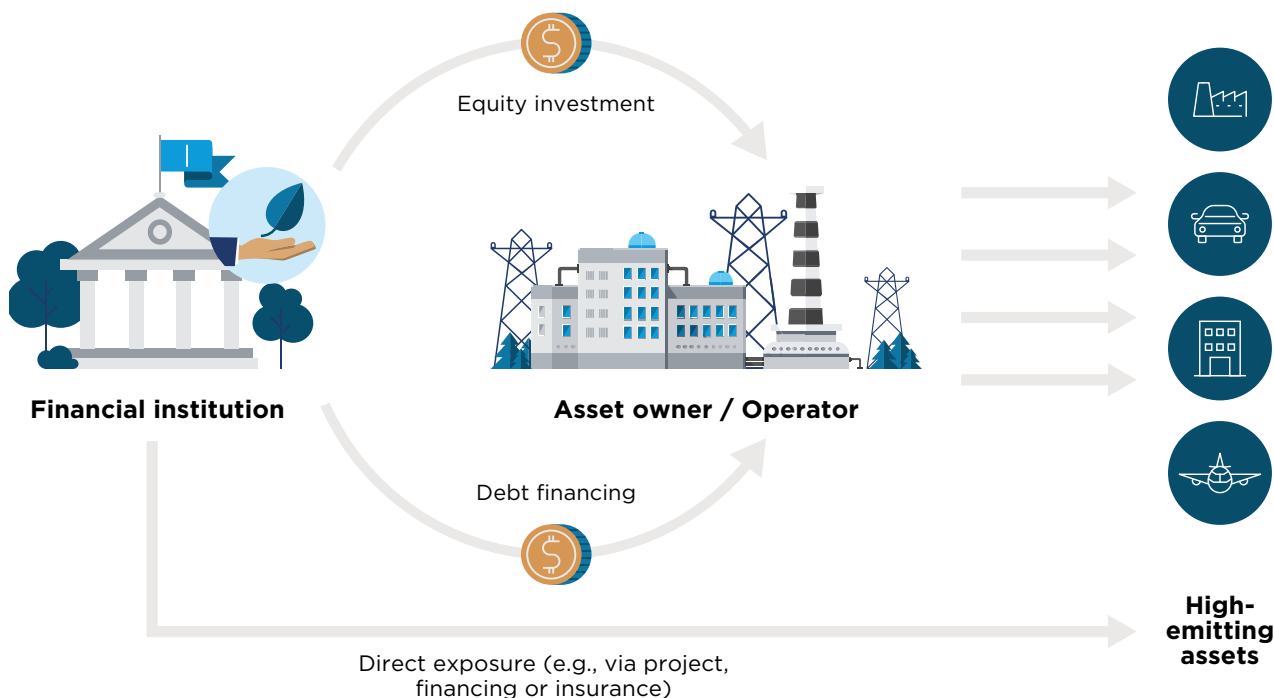
Over 500 financial institutions are committed to net zero through the sector-specific net-zero alliances that make up GFANZ (see Appendix A). As set out in *GFANZ Recommendations and Guidance on Net-zero Transition Plans for the Financial Sector*, GFANZ members can support real-economy GHG emissions reductions through:¹²

- 1) financing or enabling the development and scaling of climate solutions to replace high-emitting technologies or services;
- 2) financing or enabling companies already aligned to a 1.5 degrees C pathway;
- 3) financing or enabling the transition of real-economy firms, according to robust net-zero transition plans; and
- 4) financing or enabling the Managed Phaseout of high-emitting physical assets.

Box A: High-emitting assets

High-emitting assets are real/physical assets that provide important functions in sectors of the economy that account for significant direct or indirect production of GHG emissions. This encompasses energy assets (such as coal mines, fossil-fuel power stations, oil fields, and gas pipelines), assets in industrial sectors (such as steel mills, ships, and cement plants), and assets in the consumer sector (such as vehicles). The financial sector may be exposed to high-emitting assets indirectly through their finance of companies and other real-economy asset owner-operators or directly through services such as project finance and insurance (Figure 3).

Figure 3: The financial sector can have direct or indirect exposure to high-emitting assets



¹² Source: GFANZ. *Recommendations and Guidance on Net-zero Transition Plans for the Financial Sector*, 2022.

THE SCALE OF HIGH-EMITTING ASSETS THAT WOULD NEED TO BE “RETIRED EARLY” IS SIGNIFICANT.

The IPCC’s most recent reports suggest that if historical operating patterns are maintained, CO₂ emissions from existing fossil fuel-based infrastructure¹³ (660 GtCO₂) would exceed the 1.5 degrees C carbon budget (510 GtCO₂) by 30%, and by 66% when currently planned infrastructure is taken into account (850 GtCO₂), see figure 4.¹⁴ A recent study¹⁵ estimated CO₂ emissions from existing and under-construction oil and gas fields and coal mines would be even higher at 936 GtCO₂, comprising 47% from coal, 35% from oil and 18% from gas.

IN THE CONTEXT OF THE NET-ZERO TRANSITION, HIGH-EMITTING ASSETS MAY REPRESENT FINANCIAL RISK.

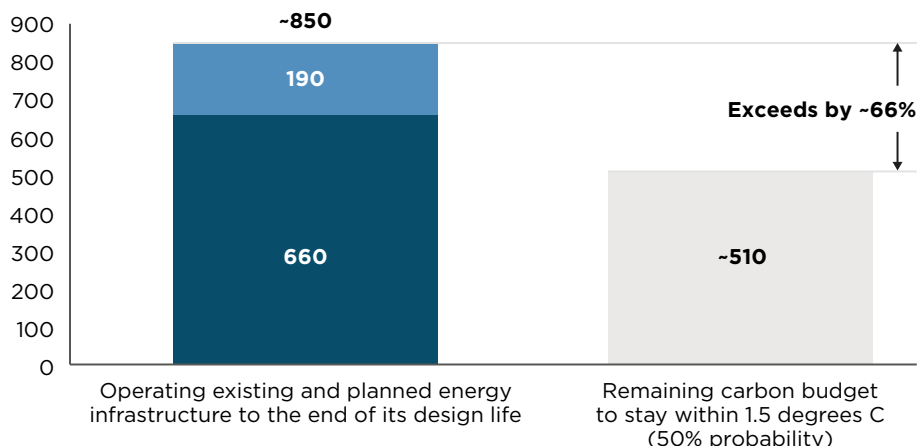
A significant portion of high-emitting assets are at risk of stranding as the world transitions to net zero to mitigate climate change. Such stranding can occur via government policy, technology, consumer preferences, and other developments, and can happen at a scale to be economically disruptive. As the value of these assets reflects anticipation of such changes, this can lead to financial risks for both equity and debt holders.

A planned approach to the early retirement of high-emitting assets should reduce the risk these assets become stranded and promote an orderly transition.

Figure 4: CO₂ emissions from existing and planned energy infrastructure would alone exceed the carbon budget by 66%

■ Planned
■ Existing

Source: IPCC. Climate Change 2022, Mitigation of Climate Change



¹³ Source: IPCC. Fossil fuels defined by the IPCC as “Carbon-based fuels from fossil hydrocarbon deposits, including coal, oil, and natural gas.”, 2018.

¹⁴ Source: IPCC. *Climate Change 2022, Mitigation of Climate Change*, 2022. From 2018 until the end of its lifetime, CO₂ emissions amount to 660 [460–890] GtCO₂. They would amount to 850 [600–1100] GtCO₂ when unabated CO₂ emissions from currently planned infrastructure in the power sector is included. 850 GtCO₂ is 66% more than the total remaining carbon budget consistent with limiting warming to 1.5 degrees C with a 50% probability.

¹⁵ Source : Kelly Trout et al., Existing fossil fuel extraction would warm the world beyond 1.5 °C *Environ. Res. Lett.* 17 064010, 2022.

THE EARLY RETIREMENT OF A HIGH-EMITTING ASSET CAN BE ONE APPROACH IN A NET ZERO-ALIGNED STRATEGY.

The continued operation of many high-emitting assets may be necessary in the near term as part of the transition, such as where they provide key services to a population. But the imperative of the net-zero transition is that they are withdrawn from the economy at a point within their normal design life. Financial institutions and asset owner-operators therefore need to be able to adopt an approach to high-emitting assets that recognizes both these features.

This Report sets out Managed Phaseout as an approach that uses a commitment on the maximum¹⁶ operating life of a high-emitting asset, along with suitable stewardship, as the basis for a net-zero transition strategy for that asset, or as part of a company transition plan with respect to high-emitting assets it owns or operates. This Report sets out actions to develop the frameworks and guidance for Managed Phaseout as one option for a credible, orderly, and just net-zero-transition strategy (see Box B).

Box B: Just transition and Managed Phaseout

The early retirement of high-emitting assets can come with significant just transition considerations as the assets may be of particular importance in a national or local context. For example, affected stakeholders might face loss of employment, discontinuity of critical services, and other challenges. The potential to incorporate just transition considerations and partner with broader stakeholders can be key to both successful financing and delivery of a Managed Phaseout plan. Guidance on just transition planning is being developed by various initiatives.¹⁷

¹⁶ An asset may be retired within this timeframe (e.g., due to competition with low-cost, low GHG-emission technologies or accelerated decarbonization ambition).

¹⁷ For example, in the context of the energy transition, the Council for Inclusive Capitalism has developed a framework with four core pillars: (1) supporting universal access to energy and a net-zero GHG emissions world; (2) evolving the energy workforce to support a low- and zero-carbon energy future; (3) building community resilience; and (4) fostering collaboration and transparency throughout the process. Source: Council for Inclusive Capitalism. [Achieving a Just Energy Transition: A Framework for Company Action](#), 2022.

2. Managed Phaseout as a net zero-aligned strategy

MANAGED PHASEOUT IS A STAKEHOLDER-ENGAGED, NET ZERO-ALIGNED STRATEGY FOR THE EARLY RETIREMENT OF HIGH-EMITTING ASSETS.

It allows financial institutions to provide clarity to asset owner-operators that the finance (lending, investment, insurance) for high-emitting assets can be provided conditional on plans to cease operation of those assets on a timeframe that is consistent with the net-zero transition (and the asset owner-operators' own GHG emissions reduction plans where applicable). Furthermore, the asset owner-operator can make use of such asset-level plans as part of their broader net-zero transition planning.

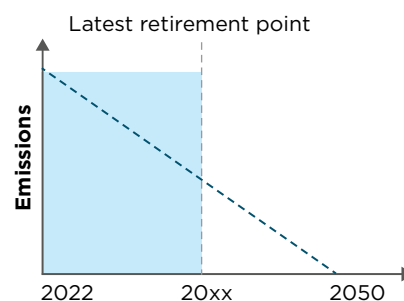
It is predicated on the view that some high-emitting assets can continue to be operated (indeed many need to be while no/low-carbon alternatives are developed) within a 1.5 degrees C-aligned retirement date as an alternative but equivalent approach to a GHG emissions reduction pathway. Relevant assets are those that may be viable today but are either at financial risk as the global economy decarbonizes or are inconsistent with a 1.5 degrees C-aligned transition in their current operations; and where assets cannot be redeveloped or retrofitted and so need to be retired over a suitable timescale.

Figure 5 shows the potential GHG emissions profile for a single asset or set of assets. For a single asset, a possible 1.5 degrees C-aligned GHG emissions profile could be for GHG emissions to stay

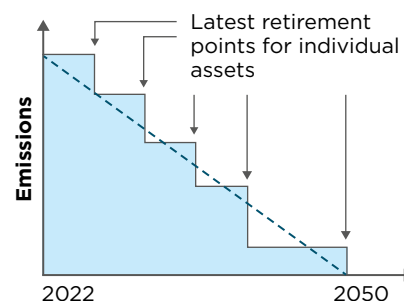
largely constant and then stop completely upon closure (top). The latest retirement point could be calibrated in such a way that GHG emissions are equivalent to a downward sloping GHG emissions trajectory to net zero. A company operating a number of high-emitting assets could potentially retire them at different times creating a stepped GHG emissions profile that could similarly be 1.5 degrees C-aligned (bottom).

Figure 5: Some high-emitting assets can continue to be operated in the short term, as long as a 1.5 degrees C-aligned retirement date is set

Potential Managed Phaseout for an asset



Potential pathway for an asset owner-operator



In some cases, private finance alone can support a Managed Phaseout plan, when the economics of financing an asset through to its early retirement makes sense, and such an early retirement fits with a financial institution and/or company net-zero strategy. Credit and insurance products are often provided on an annual basis and so easier to provide up to a retirement point.

In others, public or concessionary sources of capital may be required for existing or new finance to be provided given the shortened implied operating life. Importantly, many early retirement situations may be driven by public-sector objectives, e.g., a government's nationally determined contribution (NDC), or when the assets are publicly owned but draw on private finance. Financing considerations are covered in more detail in Section 5: A Framework for Managed Phaseout.

MANY FINANCIAL INSTITUTIONS (LENDERS, EQUITY INVESTORS AND INSURERS) HAVE BECOME HESITANT TO PROVIDE FINANCE TO HIGH-EMITTING ASSETS, EVEN WHEN THE OBJECTIVE IS DECARBONIZATION THROUGH EARLY RETIREMENT.

This includes financing in private markets but also where state actors and multilateral development banks have tried to initiate decarbonization strategies for high-emitting assets, including through early retirement. Some of the challenges faced in financing decarbonization through early retirement are set out in Box C.

Box C: Pressure to withdraw finance from high-emitting assets and sectors can limit the financing of decarbonization through early retirement

GFANZ MEMBERS, AND OTHER FINANCIAL INSTITUTIONS, FACE PRESSURE TO WITHDRAW FINANCE FROM HIGH-EMITTING ACTIVITY TO MEET THEIR NET-ZERO OBJECTIVES (SEE APPENDIX A).

One way for financial institutions to demonstrate progress on their net-zero commitments is to reduce their financed (or insured) emissions—indeed ultimately reducing these to net zero is a core target. Reducing financing exposure (at the extreme full divestment/withdrawal, but also negative screening and tilting) to high-emitting assets (i.e., those with a high current carbon footprint) can result in a reduction in measured financed emissions,¹⁸ and so may appeal in terms of speed and simplicity.

THERE CAN ALSO BE ECONOMIC PRESSURES TO WITHDRAW FINANCING.

Divestment/withdrawal pressures may also manifest if:

- Valuation can be realized from selling an asset that is compelling versus the context of an asset being run off/retired/phased out and potential returns from competing clean technologies.
- The imperative of shortened asset life may lead to a risk-adjusted return that is too low.
- The regulatory or contractual regime (e.g., existing long-dated purchase agreements) may hinder early retirement such that it's simpler to sell an asset.
- There may be a lack of capacity within a financial institution on financing assets to retirement.

¹⁸ See: PCAF. [The global GHG accounting and reporting standard for the financial industry](#), 2020.

HOWEVER, REDUCTION OF FINANCED EMISSIONS IN DEBT OR EQUITY PORTFOLIOS THROUGH “DIVESTMENT” DOES NOT DIRECTLY REDUCE REAL-WORLD GHG EMISSIONS.

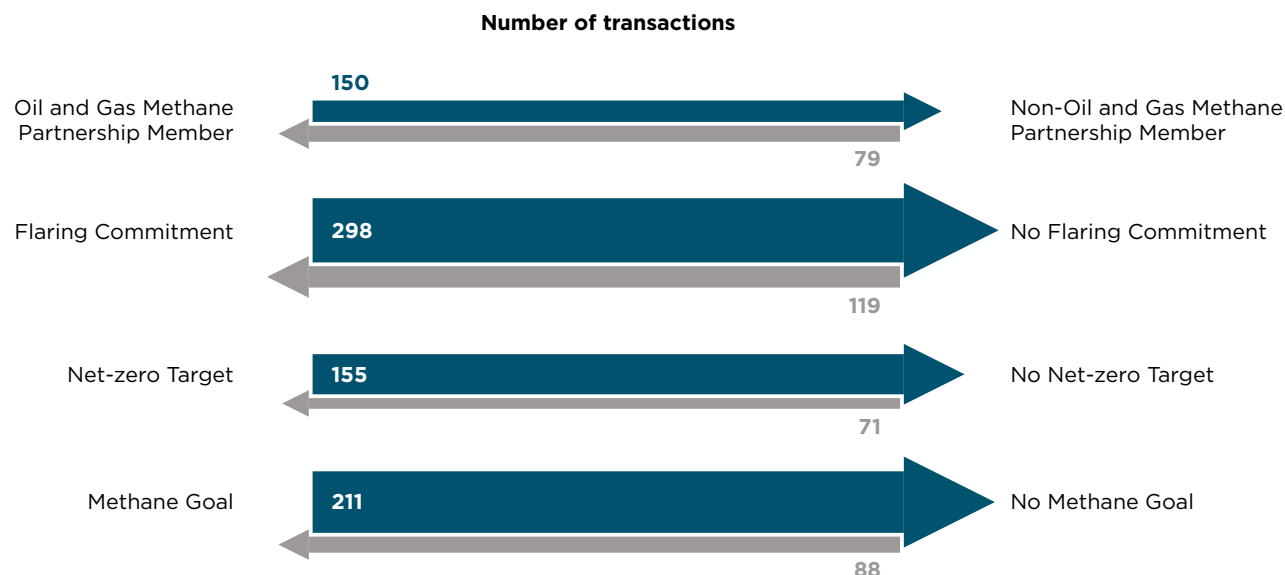
The divestment movement has provided important pressure to decarbonize, and divestment may affect the cost of capital of high-emitting technologies versus clean ones; it may also allow for reallocation of finance to low-carbon alternatives that ultimately displace high-emitting ones. But neither the act of a financial institution reducing exposure to high-emitting companies, nor the act of a company selling a high-emitting asset, guarantees actual GHG emissions reduction. Counterintuitively, divestment movements may result in overall GHG emissions increases in the global economy, as high-emitting assets are transferred to companies and/or countries that are less sensitive to decarbonization pressures.

- In recent years, there have been prominent examples of **GHG emissions increases** from real assets after they have been sold.
- If financing of high-emitting assets passes from net zero-committed financial institutions and companies to others with lower climate ambition or less stringent disclosure requirements, it is **less likely these assets will be managed out** in the accelerated manner required of an orderly and just transition.

- If the net zero-committed financial sector withdraws from companies in high-emitting sectors, they may **lose influence over the strategies** of those companies to decarbonize.
- There are significant **just transition considerations** with some high-emitting assets (e.g., that provide significant local employment or have environmental obligations), and new owners may have less regard for these elements.
- Sectors with high-emitting assets are typically those that **need the most investment** to transition from high to low-/no-GHG emissions technology.

The Environmental Defense Fund (EDF) describes this as the “transferred emissions” problem.¹⁹ Its recent analysis of the oil and gas sector found that assets were increasingly moving away from companies with environmental commitments (Figure 6): more than twice as many transactions moved assets away from operators with net-zero commitments than the reverse in the period 2018–2021. EDF found that 155 transactions worth \$86.4 billion have moved assets away from net zero-committed companies, and around a third of asset transfers (by value) in 2021 resulted in reduced environmental commitment.

¹⁹ Source: Environmental Defense Fund. Transferred Emissions: How Risks in Oil and Gas M&A Could Hamper the Energy Transition, 2022.

Figure 6: Changes in Environmental Commitments from Asset Transfers (2017-2021)

Source: Environmental Defense Fund. Transferred Emissions: How Risks in Oil and Gas M&A Could Hamper the Energy Transition, 2022

EDF's case studies reveal that transfers of assets to operators with reduced environmental commitments can stall progress in reducing GHG emissions and in some cases lead to a near-term rise in GHG emissions. And while recognizing that there are several drivers for asset sales beyond energy transition planning and financial pressure for GHG emissions reduction, EDF nevertheless warns that these pressures may mean a growing number of upstream oil and gas assets are at risk of weaker climate stewardship.

EDF concludes that these factors combined may have a significant effect in slowing the energy transition. It suggests that rather than calling for blanket asset sales, investors can reward oil and gas companies that decide to steward assets responsibly.

The transferred emissions issue is also recognized by the regulatory community given the implications for risks to the financial system. In particular, approaches that may lead financial institutions to green their own balance sheets through divesting GHG emissions-intensive exposures, will not reduce the system-wide risks unless GHG emissions in the economy are also reduced.²⁰

More generally, financial institutions have noted they have felt unable to participate in energy sector decarbonization projects organized by governments and multilateral development banks, such as "coal to renewable" projects in Asia, because the immediate exposure to coal could be viewed as conflicting with policies they have put in place on coal financing.

THE FINANCIAL SECTOR NEEDS AN APPROACH THAT ENSURES THAT RESPONSIBLE STEWARDSHIP OF HIGH-EMITTING ASSETS CAN LEAD TO BETTER OUTCOMES FOR THE CLIMATE.

20 For example: Bank of England. "Balancing on the net-zero tightrope" [speech by Sarah Breeden](#), 2022.

THE FINANCIAL SECTOR NEEDS A CREDIBLE APPROACH TO FINANCING HIGH-EMITTING ASSETS WITH RETIREMENT PLANS AS PART OF BROADER NET-ZERO TRANSITION PLANNING—MANAGED PHASEOUT.

To support a Managed Phaseout approach, the following elements may be needed:

- a) forward-looking **metrics and targets** tailored to Managed Phaseout in order to assess ambition and progress on this specific approach to transitioning to net zero;
- b) financial institutions' **financing policies and conditions**²¹ to accommodate financing of high-emitting assets where a net zero-aligned strategy, such as Managed Phaseout, is in place;
- c) credible **transition pathways** for high-emitting sectors (incorporating sectoral and regional specificity) and the ability to map these to a net zero-aligned asset-level operating life;
- d) tools to help companies and financial institutions **identify** those assets that may need to be retired early to be consistent with the transition to net zero;
- e) guidance on **financing mechanisms** that can support Managed Phaseout plans; and
- f) strong **public policy** steers to support Managed Phaseout as an approach.

(A) FORWARD-LOOKING METRICS AND TARGETS TAILORED TO MANAGED PHASEOUT PLANS

Many financial institutions have operationalized their net-zero commitments primarily through targets to **reduce their financed emissions**; but the challenge is to ensure this results in **financing emissions reductions**. Box C on the pressures to withdraw finance from high-emitting assets captures how strategies based on financed emissions targets may disincentivize Managed Phaseout.

To avoid this, it may be useful to complement targets for financed emissions reduction with specific considerations for Managed Phaseout. This may involve separating out the GHG emissions related to assets with a Managed Phaseout plan, as part of a forward-looking approach²² to assessing their alignment with net zero, with appropriate additional ongoing transparency and scrutiny.

What is needed: Target-setting guidance to capture a role for Managed Phaseout as part of net-zero transition planning by financial institutions and companies.

²¹ Financial institutions' net-zero transition plan may include policies and conditions on key climate-related topics that are designed to accelerate the real-economy transition, such as thermal coal, oil and gas production, and deforestation.

²² SBTi's April 2022 net-zero target-setting guidance for financial institutions acknowledges the need for such a forward-looking approach: "A forward looking approach can help ensure the necessary transition finance to all companies that have signaled their intention to decarbonize, regardless of their sector or current GHG emission footprint." Source: SBTi. [Foundations for Science-Based Target Setting in the Financial Sector](#), 2022.

(B) THE DESIGN OF FINANCING POLICIES AND CONDITIONS TO ACCOMMODATE FINANCING WHERE A NET ZERO-ALIGNED STRATEGY IS IN PLACE, SUCH AS MANAGED PHASEOUT

Understandable pressure from the public, civil society, and shareholders to reduce finance to those involved in high GHG-emissions activity has led to the development of exclusionary policies for fossil fuels. Unfortunately, if miscalibrated, these may preclude finance of high-emitting assets even where a net zero-aligned transition or Managed Phaseout plan is in place.

What is needed: Incorporating the need for credible transition plans (including Managed Phaseout plans) into the construction of financing policies and conditions to ensure they do not disincentivize transactions that target decarbonization aligned with the net-zero transition. This has been included in the GFANZ Recommendations and Guidance on Net-zero Transition Plans for the Financial Sector.

(C) CREDIBLE TRANSITION PATHWAYS FOR HIGH-EMITTING SECTORS (INCORPORATING SECTORAL- AND REGIONAL-SPECIFICITY) AND THE ABILITY TO MAP THESE BACK TO NET ZERO-ALIGNED ASSET-LEVEL OPERATING LIFE

Financial institutions and companies need pathways, incorporating sectoral and geographic nuances, to understand the timescale over which a high-emitting asset ought to be phased out as part of a net-zero strategy.²³

As noted in Figure 5, the nature of retiring an asset, rather than transitioning a business,

may lead to a different GHG emissions trajectory (i.e., rather than a downward trajectory out to 2050 the relevant GHG emissions trajectory for an asset planned for retirement may be broadly flat, then cease completely when taken out of service). Understanding the net zero-aligned timeframe for the latest retirement point of an asset may involve a mapping from the overall sector/regional level pathway. Independent verification of transition plans, including for Managed Phaseout, will also support confidence to finance such plans.

What is needed: Sector- and region-specific asset retirement timeframes (i.e. to determine the latest retirement point for an asset) drawn from, and aligned, with 1.5 degrees-C pathways.

(D) TOOLS TO HELP IDENTIFY THOSE ASSETS THAT MAY NEED TO BE RETIRED EARLY TO BE CONSISTENT WITH THE TRANSITION TO NET ZERO

Tools to help identify those assets for which a Managed Phaseout approach would be suitable, as part of broader net-zero transition plans of financial institutions and their clients, may also be useful. Section 4 provides some initial considerations of how to consider suitable assets.

What is needed: Development and adoption of tools that enable asset-level assessment of whether an asset can be decarbonized or needs to be phased out, over what time frame this needs to occur, whether this can prepare for or catalyze low GHG-emissions technology change, and whether there are other stakeholders who would have an interest in participating.

²³ Many countries are now working to articulate in more specificity how they will transition to net zero, including through sector-specific strategies often starting with energy. And there is significant work underway by organizations to develop pathways and sector and region granularity by entities such as the Mission Possible Partnership, International Energy Agency, the Network for Greening the Financial System, One Earth Climate Model, Inevitable Policy Response, and others. And the GFANZ workstream on Sectoral Pathways is seeking to ensure the financial sector has usable pathways to meet this need.

(E) GUIDANCE ON FINANCING MECHANISMS THAT CAN SUPPORT MANAGED PHASEOUT PLANS

Financial institutions and recipients of financial services all benefit when there are pre-existing, best-practice approaches or guidelines that can be applied to specific transactions. For example, standardization of best-practice approaches helped catalyze renewable energy financing in the last decade. The availability of credible, accepted financing structures could help to support Managed Phaseout as part of net-zero transition planning. Given the broad range of stakeholders with an interest in a just and orderly transition to net zero, financing mechanisms that can support co-financing across different stakeholder groups may be particularly useful.

What is needed: *Guidance on financing mechanisms that consider different sources of capital suited to the risk/return profile of different phaseout situations.*

(F) PUBLIC POLICY TO SUPPORT MANAGED PHASEOUT AS AN APPROACH

As governments set public policy in support of their net-zero objectives, they can give greater clarity on economy-wide and sector-specific strategies and plans to improve clarity for those planning for asset retirement. Some examples of where public policy can help sharpen the incentives around early retirement to support decarbonization are set out below.²⁴

Moratoriums and targets: Some government strategies and policies have indicated timeframes for the phaseout of particular technologies

(e.g., fossil fuel power generation and internal combustion engine passenger vehicles) or set out targets for new technologies that will replace them. Ensuring that all countries articulate such policies for their highest emitting sectors as a matter of priority can sharpen the incentives for the financial and corporate sectors and provide the basis for retirement timescales and provide a credible timeframe for retirement of an asset.

Incentive schemes: Various schemes have been used to incentivize early retirement of physical assets in the economy, from reverse auctions to decommission coal power, to “cash for clunkers” scrappage schemes. Carbon pricing schemes – public and private – can similarly sharpen incentives around closure timeframe if well designed. Examples of incentive schemes are captured in Figure 9 in Section 4.

Financial regulation: Regulations facing the financial sector could recognize Managed Phaseout as a credible approach to managing transition risks that also has system-wide benefits.

Other regulation: To ensure decommissioning costs are fully captured by asset owner-operators, some jurisdictions have introduced requirements, such as full-cost bonding at point of asset sale. This can ensure costs associated with decommissioning are suitably captured where asset sale may be an alternative to Managed Phaseout.

What is needed: *Greater clarity from governments on policies to achieve their net-zero objectives and consideration by financial sector regulators of how to ensure their approaches support Managed Phaseout.*

²⁴ An RMI report cataloged ten policy components for managing the capital losses associated with early retirement of coal-fired generating assets. It also identified the factors that influence the applicability of components and the potential challenges of including them in policy design. In particular, the work outlined a spectrum of who would shoulder any losses from policy implementation from asset owners (for example, in the case of mandating closure) to governments (such as when asset owners are compensated for closure). Source: RMI. [Managing the Coal Capital Transition](#), 2018.

3. Key benefits of a Managed Phaseout approach

HAVING A MANAGED PHASEOUT APPROACH MAY PROVIDE SOME KEY BENEFITS IN FINANCING THE NET-ZERO TRANSITION:

1. Promote an orderly transition by reducing the risk of sudden value destruction from stranding. Integrating an understanding and evaluation of stranded asset risk (including integrating this into audited financial statements), can inform financial institutions and reduce the risk of sudden value destruction. In a similar vein, the assessment of whether to build any new high-emitting assets (brought into focus by the sanctions on Russia in light of the invasion of Ukraine) can draw on Managed Phaseout, and the implied maximum life of an asset, as part of consideration of the overall economics of such investments, relative to lower GHG-emissions alternatives.
2. Mitigate financial marginalization for companies that have high-emitting assets but with credible transition plans for their retirement. Having a credible, net zero-aligned plan for high-emitting assets can ensure a wider pool of prospective financiers, reducing the cost of capital and unlocking higher valuation and liquidity of assets.
3. Draw in broader stakeholders to support just transition and continuity of service considerations. A Managed Phaseout approach can involve other stakeholders with an interest in phasing out high-emitting assets and sectors such as governments, multilateral development banks, civil society actors, and local communities. Economic interests such as from local employment impacts, ensuring continuity of critical services and meeting climate goals can provide the basis for co-financing a Managed Phaseout plan.
4. A Managed Phaseout plan enables net zero-committed financial institutions to maintain engagement with and investments in companies in high-emitting sectors. This supports influence over broader net-zero strategy and planning at these companies, maintains portfolio diversification, and recognizes that client or investee relationships and interests in companies are often broader than just a set of high-emitting assets.

Figure 7 summarizes why equity- and debt-oriented finance providers may view Managed Phaseout favorably compared to either financing a high-emitting asset absent a Managed Phaseout plan or divesting it (withdrawing finance). Critically, the key advantage of Managed Phaseout is it provides the only approach that leads to a reduction in GHG emissions from the asset in question, which is crucial in the context of system-level decarbonization.

Figure 7: Comparing Managed Phaseout to alternative paths

Equity finance may be via equity participation in a project encompassing a high-emitting asset, or an asset owner-operator's ownership of high-emitting assets.

EQUITY FINANCE	STATUS QUO FINANCING	DIVEST ASSET	MANAGED PHASEOUT
System-level GHG emissions	Does not reduce GHG emissions	May not reduce GHG emissions (may increase cost of capital for high-emitting assets or redirect finance to low-emitting activity)	Reduces GHG emissions
Net-zero commitment	Conflicts with commitment	Can meet commitment	Can meet commitment (contingent on phaseout timing)
Portfolio diversification	Maintains portfolio diversification	Reduces portfolio diversification	Maintains portfolio diversification
Engagement / influence	Maintains interest/influence over company/asset	Reduces interest/influence over company/asset	Maintains interest/influence over company/asset
Risk-adjusted return	Generates near-term cash flow but remains exposed to stranded asset risk, which can crystallize quickly, leading to sudden losses. Likely higher cost of capital absent a net-zero transition plan	Crystallizes asset valuation today, which may lead to better or worse financial outcomes, depending on the extent to which stranding risk has already been reflected and breadth of potential buyers	Potential for improved risk-adjusted return as can maintain near-term cash flow generation while Managed Phaseout plan may lower cost of capital; not guaranteed. Potential loss of cash flow if closed when still cashflow generative
Liquidity	May be hard to sell asset	Divestment today may avoid future liquidity challenges	Enhanced liquidity of asset by having a plan that is acceptable to the breadth of the net-zero committed community (companies and financial institutions)

Debt finance, such as bonds, loans, or other credit facilities may be via project finance or finance to a specific asset. Similar considerations may apply to insurance provision.

DEBT FINANCE	STATUS QUO FINANCING	WITHDRAW FINANCE	MANAGED PHASEOUT
System-level GHG emissions	Does not reduce GHG emissions	May not reduce GHG emissions (may increase cost of capital for high-emitting assets or redirect finance to low-emitting activity)	Reduces GHG emissions
Net-zero commitment	Conflicts with commitment	Meets commitment	Can meet commitment (contingent on phaseout timing)
Client relationship	Maintains client relationship/influence	Loses client relationship, reduces influence	Maintains client relationship/influence
Risk-adjusted return	Maintains current return / repayment profile but increases risk of losses over time due to increased stranding risk, which can crystallize quickly, leading to sudden losses	Exits near-term cash flow generation	Phaseout plan may lower stranding risk and can align financing (term and replacement profile), but potentially shorter period for financing Potential to expand financing activity to transition assets
Liquidity	Market appetite for debt in these assets will fall	May avoid future liquidity challenges	Enhanced access to global debt markets by engaging with asset in a way that is acceptable to the breadth of the net zero-committed community

4. Identifying assets relevant for Managed Phaseout

Figure 8 outlines an initial framework to help identify assets within portfolios that could be well suited to a Managed Phaseout approach. This includes:

- (a) Assessing whether the asset is likely to need retirement in the context of the net-zero transition (rather than, for example, be redeveloped or retrofitted).
- (b) The potential timeframe over which the asset would need to be retired in the context of broader net-zero goals. The timing for a

phaseout project will likely be a function of the relevant region- and sector-specific transition pathway. Younger assets, for example, may be in more need of a Managed Phaseout plan than older ones that may be expected to retire “naturally”.

In addition, it may be helpful to consider what other stakeholders might have an interest in an asset’s retirement given this may be relevant to the economics of a Managed Phaseout plan.

Figure 8: Identifying assets relevant for Managed Phaseout approach

1 DOES THE ASSET NEED TO BE PHASED OUT?	Potential considerations could include the following characteristics: <ul style="list-style-type: none"> • Is the asset in a high-emitting sector? • Is there scope for investment to decarbonize through redevelopment or retrofitting? • How does the asset sit within sector (e.g., GHG emissions intensity relative to substitute product/service, incoming/expected technology, cost)? • Asset age; relatively young assets may need a plan to be retired early given potential length of operation otherwise.
2 OVER WHAT TIME FRAME DOES THE ASSET NEED TO BE RETIRED / PHASED OUT?	What is the normal operating life / time horizon of the asset? What timeframe for retirement is implied by a net zero-/1.5 degrees C-aligned sectoral pathway?
3 ARE THERE OTHER STAKEHOLDERS WHO WOULD HAVE AN INTEREST?	Does the asset pertain to a broad set of stakeholder interests? What might be the implications of this on financing support and just transition considerations (e.g., employment, continuity of service)?

Work on sectoral pathways may support the identification of assets at risk of stranding. For example, some developers of sectoral pathways, such as Mission Possible Partnership, have developed technology roadmaps that can help assess when current technologies may be replaced by new no-/low-carbon alternatives.

Auditors may increasingly be expected to capture stranded-asset risk considerations (and expected operating life in the context of the transition) in their assessment of the valuation of a firm's high-emitting

asset exposure. The identification framework set out here can support those endeavors.

Examples of relevant assets can be seen across sectors, and specific approaches to identify such assets have been seen, particularly with respect to fossil fuels.²⁵ Figure 9 lays out some of these examples alongside how an asset-level retirement may relate to a broader corporate transition imperative. Appendix B summarizes 13 transactions that are proposed, underway, or completed across sectors and geographies.

Figure 9: Examples of asset retirement across sectors

SECTOR	CORPORATE TRANSITION	ASSET RETIREMENT	EXAMPLE
Power generation	Shift mix from fossil fuel to renewable energy	Fossil fuel plants	The Asian Development Bank (ADB) created a blended coal reduction fund to purchase and phase out coal assets on accelerated timeline.
Steel	GHG emissions reduction based on new tech rollout	Blast furnaces	Canadian federal investment of \$400 million in ArcelorMittal Dofasco G.P., Canada's largest producer of flat-rolled steel to support a \$1.765 billion project to phase out coal-fired steelmaking at its facilities in Hamilton, Ontario and develop a direct reduced iron-fed electric arc furnace in its place.
Auto/trucks	Manufacturers transition from internal combustion engine (ICE) to electric vehicle	ICE manufacture Scrappage of vehicles	Cash for Clunkers was a £3 billion U.S. program operational in 2009 for car owners to trade in their old, less fuel-efficient vehicles and buy more fuel-efficient vehicles.
Aviation	GHG emissions reduction base on new tech rollout	Scrappage of planes	British Airways had planned to retire its double-decker Boeing Co. 747s by 2024 but accelerated that timeline after the pandemic upended the economic calculus. All of the airline's 747 fleet ceased operating by October 2020.
Buildings	GHG emissions reduction based on energy-efficiency measures	Demolition	Demolition unlikely to be 1.5 degrees C-aligned in many cases (compared to retrofitting) unless there are structural flaws with the building, due to GHG emissions from new building materials.
Fossil fuel production (mines, drills)	Shift in business mix toward sustainable fuels and minerals	Decommissioning mines and wells	Total announced it is writing off \$9.3 billion worth of tar sands assets in Alberta and categorized two of its tar sands projects as stranded assets because producing them is incompatible with the company's goal of achieving carbon neutrality by 2050.

25 For example, Carbon Tracker has carried out in-depth analysis on potential investment in high-cost, carbon-intensive fossil fuel assets, including those at risk of stranding. Source: Carbon Tracker. Multiple publications including: [How to Retire Early: Making accelerated coal phaseout feasible and just](#), 2020.

Box D: Managed Phaseout can support emerging markets and developing economies' climate goals

The need for a Managed Phaseout approach may be particularly important in emerging and developing economies (EM&DEs) and can support the mobilization of private climate finance.

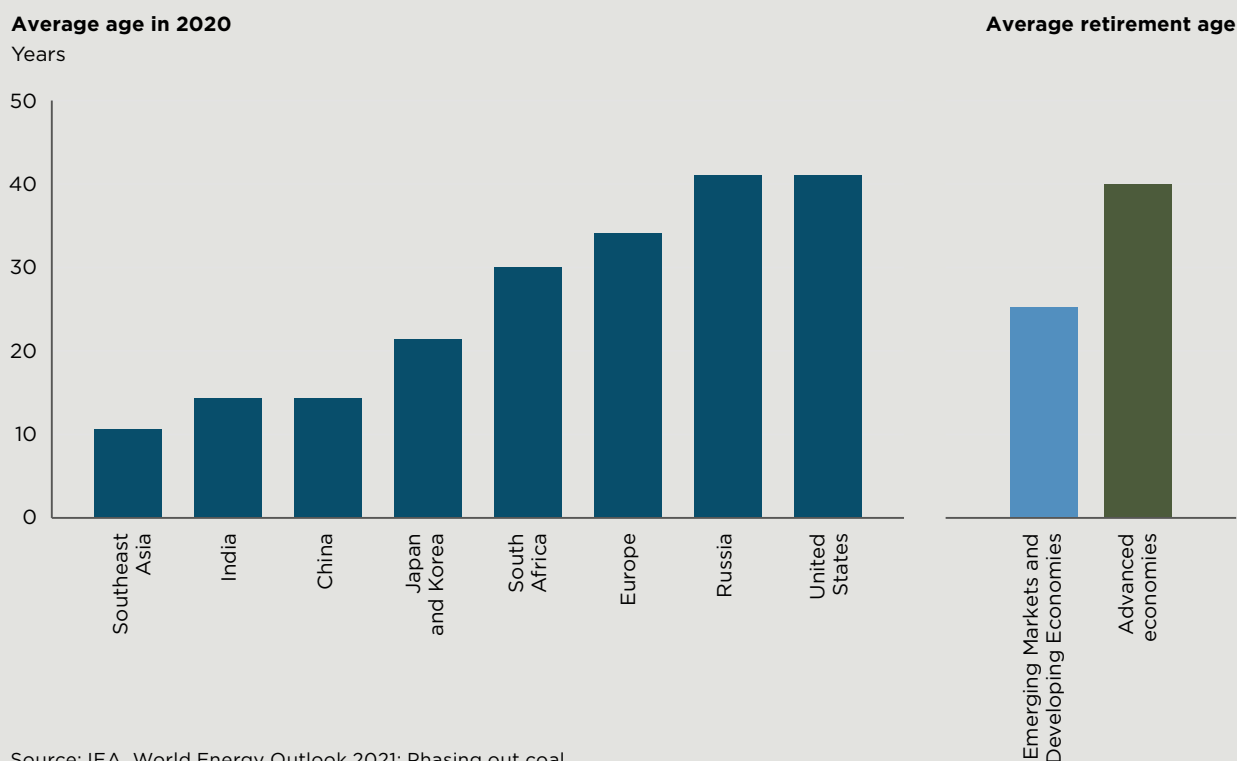
THE AVERAGE AGE OF HIGH-EMITTING ASSETS IS LIKELY TO BE YOUNGER IN EM&DEs.

The IEA estimates that in its net-zero scenario, the average retirement age of coal power plants in EM&DEs in 2020 was around 25 years

compared to 40 years in advanced economies (AEs) (Figure 10). This may make Managed Phaseout a more widely applicable net-zero strategy in EM&DEs to support early retirement of assets to ensure they get the finance they need today to support key services, but avoid them operating for longer than is consistent with the globally agreed climate goals.

Regional pathways should differentiate the appropriate timing needed to retire high-emitting assets between EM&DEs and AEs.

Figure 10: Average age of existing coal power plants in 2020 in selected regions and average age at retirement in the IEA's Net-zero Emissions Scenario



Source: IEA. World Energy Outlook 2021: Phasing out coal

THE IMPACT FROM WITHDRAWAL OF FINANCE MAY BE MORE SEVERE FOR EM&DES.

Meridian Economics notes that the issue of divestment may be more pronounced for EM&DEs where legacy emitting sectors are often of systemic importance, and so divestment and withdrawal of finance may have the result that EM&DEs see reduced investment, thereby posing a fundamental threat to the ongoing development of their entire economies.²⁶ And analysis by Ninety One notes that at the level of the global financial system, ongoing divestment may divert finance away from EM&DEs, which they say usually have higher carbon intensity, in the effort to clean up portfolios.²⁷

MOBILIZING GLOBAL PRIVATE FINANCE WILL BE KEY TO SUPPORT NET-ZERO TRANSITION IN EM&DES.

In many cases the asset owner-operators of high-emitting assets in EM&DEs are public (state-owned entities, municipalities). In the absence of private finance, investment plans need to be borne by the taxpayer who is also therefore more exposed to stranded-asset risk of high-emitting assets adding to fiscal pressures. Managed Phaseout can help support the flow of global private finance to support climate transition in EM&DEs. It may also help sharpen incentives to adopt clean technology infrastructure (e.g., by adding clarity on the shortened operating horizon of any new high-emitting assets).

PROJECTS NEED TO DEMONSTRATE ALIGNMENT WITH THE NET-ZERO OBJECTIVE.

The Asian Development Bank-led Energy Transition Mechanism is a blended finance vehicle designed to buy out and decommission coal plants in Southeast Asia while simultaneously building up renewable capacity in the region. In many respects, it presents a novel and bold template for action at scale, but it has faced criticism that private-sector participation will cause it to operate the purchased coal plants for too long (i.e., until a certain return threshold is met) and thereby overshoot a 1.5 degrees C pathway. Critics have also questioned whether just transition considerations have been given appropriate weight and the relative role of private and public sector to cover those.²⁸

PRIVATE FINANCE CAN COMPLEMENT AND CATALYZE PUBLIC AND CONCESSIONARY FINANCE.

Public or concessionary capital alone cannot meet the scale of the decarbonization the world needs. Scale requires private-sector participation, albeit in a net zero-aligned way that involves governments and other stakeholders. Where it is crucial finance is maintained (e.g., to ensure continuity of essential services) there may be a role for public finance. Indeed, many relevant assets may be state owned, particularly in EM&DEs.

²⁶ Source: Meridian Economics. [The just transition transaction: a developing country coal power retirement mechanism](#), 2021.

²⁷ Source: NinetyOne. [No one left behind. Building an inclusive transition for emerging markets](#), 2021.

²⁸ For example, see Universal Owners Initiatives. [Refinancing coal: Do private decommissioning funds have misaligned incentives?](#), 2022.

INTEGRATING MANAGED PHASEOUT INTO COUNTRY PLATFORMS CAN SUPPORT PRIVATE CLIMATE FINANCE IN EM&DEs.

At COP26, GFANZ published a Country Platform Action Plan.²⁹ This set out the ambition to develop new country platforms which deploy blended finance at scale and leverage private finance at significant multiples. These country platforms would provide a single focal point to channel technical assistance and

public and private finance to support the delivery of Paris-aligned nationally determined contributions (NDCs) in EM&DEs. They would coordinate and scale all elements including, critically, standalone private finance for all aspects of transition finance including Managed Phaseout of high-emitting assets. Integrating the Managed Phaseout approach into country platforms will help enable private finance to participate in plans for decarbonization in EM&DEs.

29 Source: GFANZ. [Country Platforms Action Plan](#), 2021.

5. A framework for Managed Phaseout

To ensure credibility, Managed Phaseout plans could be set out separately within a financial institution or the asset owner-operator transition plans. Such a Managed Phaseout plan could usefully set out the timeframe for retirement, any factors that may alter that timeframe, and any GHG emissions reduction targets. Importantly, such plans will need to address the potential that agreements made to retire assets in the future are honored at that later date.

Figure 11 represents initial features that companies or financial institutions may be expected to provide as part of their transition plans in reference to Managed Phaseout, either at asset level or as part of broader institution plan. This uses the overarching framework developed by GFANZ workstreams on Financial Institution Transition Plans and Real-economy Transition Plans for institution-level transition plans. This shows how this framework can be applied to Managed Phaseout as one of the four approaches financial institutions can use to support real-economy emissions reductions.

Figure 11: Expectations of a Managed Phaseout plan

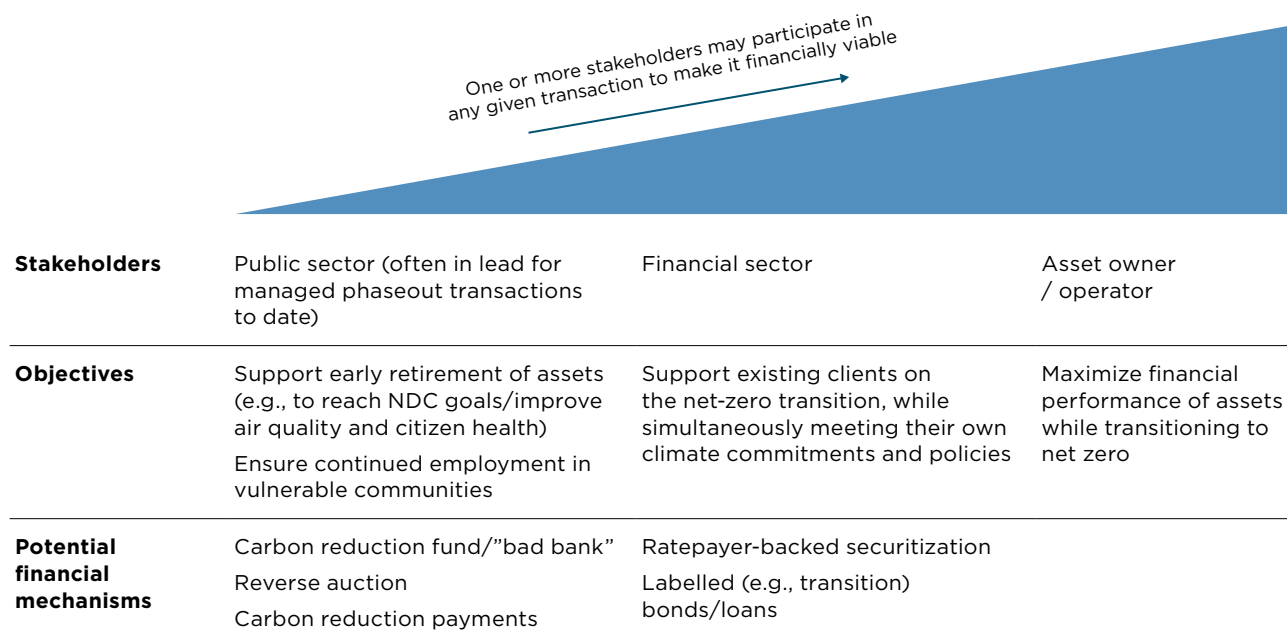
THEME	SUGGESTED INFORMATION TO DISCLOSE
Foundations	<ul style="list-style-type: none"> • Explain why a Phaseout plan is appropriate for the asset(s), and how it is aligned with a net zero strategy • Explain how the Phaseout plan fits within the firm's net-zero and climate-related strategies, as well as the broader firm's strategy • Specify how just transition and continuity of service considerations have been taken into account in the plan
Implementation strategy	<ul style="list-style-type: none"> • Articulate the key milestones and actions of the plan such as phaseout timing, and any key assumptions or uncertainties with the plan • Set out how the Phaseout plan captures risks, benefits and impacts of its implementation • Explain how the Phaseout plan is being financed and how this incentivizes retirement within the phaseout timeframe • Set out how the Phaseout plans are treated within the financial institution's policies and conditions for dealing with high-emitting sectors (such as coal, oil and gas)

THEME	SUGGESTED INFORMATION TO DISCLOSE
Engagement strategy	<ul style="list-style-type: none"> • Describe engagement with the company about the design of its Phaseout plan and progress against it, and the key metrics agreed • Specify the escalation process if metrics of the Phaseout plan are not met • Summarize any relevant engagement or collaboration with peers in relation to the Phaseout plan • Set out any relevant engagement or lobbying activities with government / public sector in relation to the Phaseout plan
Metrics and targets	<ul style="list-style-type: none"> • Set out baseline GHG emissions for the assets • Set out the expected GHG emissions reduction from the Managed Phaseout and their timing • Set out the basis for these reductions (e.g., scope included, assumptions made) • Set out how the Managed Phaseout plan aligns with a relevant sectoral pathway for the asset • Detail any carbon credits expected to be generated by the plan • Set out progress against GHG emissions reduction targets • Set out other metrics that will be measured and monitored to track progress
Governance	<ul style="list-style-type: none"> • Articulate specific reporting in relation to financing the Managed Phaseout plan • Set out level of sign off for the Managed Phaseout plan • Explain how metrics of the Managed Phaseout plan are linked to management incentives/ remuneration • Consider describing any re-training programme and other actions as part of just transition considerations associated with the Managed Phaseout plan

Individual Managed Phaseout transactions can have significantly differing economics, driven by a range of factors (e.g., remaining lifetime of asset, economics of redevelopment and decarbonization). Some transactions likely make economic sense

purely for private-sector participants as part of broader net-zero transition plans, while others may require one or more sources of public or concessionary capital to make them viable (Figure 12).

Figure 12: Concessionary / public and private finance can work together to enable a broader range of Managed Phaseout transactions



The GFANZ workstream on Managed Phaseout of High-emitting Assets has begun work to understand different financing mechanisms and will look to develop guidance for practitioners seeking to understand their range of options and apply them to Managed Phaseout efforts.

Where public finance is brought in to support the retirement of privately-owned assets, there needs to be particular care to ensure the financing mechanisms incentivize genuinely additive action to decarbonize and represent good value for those public sources. Financing mechanisms can also be structured in such a way that public finance provision incentivizes earlier retirement.³⁰

³⁰ Source: Climate Safe Lending Network. [Financial Stability in a Planetary Emergency](#), 2022. This report sets out how mechanisms that signal any publicly funded compensation for early retirement will decline over time can incentivize earlier adoption of early retirement plans.

6. What is needed to unlock Managed Phaseout?

This Report proposes nine specific near-term action areas (Figure 13) to establish Managed Phaseout as part of net-zero transition planning.

Figure 13: Actions to unlock Managed Phaseout

A CREDIBILITY AND INCENTIVES	1	Establish expectations of a Managed Phaseout approach.
	2	Capture Managed Phaseout in transition planning guidance and pathway development for financial institutions and corporates.
	3	Ensure there are metrics and targets for Managed Phaseout that support reduction in GHG emissions.
B DEVELOPING FINANCING	4	Develop guidance on financing mechanisms .
	5	Innovate beyond existing financing mechanisms.
C IDENTIFYING RELEVANT ASSETS	6	Develop framework to identify assets relevant for Managed Phaseout.
	7	Support development of tools to identify assets relevant for Managed Phaseout.
D MOBILIZING HIGH-IMPACT PROJECTS	8	Incorporate Managed Phaseout in country platforms to catalyze private finance to support climate objectives in emerging markets and developing economies.
	9	Set out public-policy actions that can support Managed Phaseout as part of economy-wide decarbonization.

A CREDIBILITY AND INCENTIVES FOR MANAGED PHASEOUT

1. ESTABLISH EXPECTATIONS OF A MANAGED PHASEOUT APPROACH: Setting out the key elements for a Managed Phaseout approach will be important in establishing credibility as a net zero-aligned strategy, as part of broader transition-planning guidance. This can build on the high-level framework set out in this Report (Figure 11) and be developed in consultation

with non-governmental organizations, standard setters, asset owner-operators, lenders, industry groups, and governments.

Action: GFANZ (potentially in partnership with real economy-focused organizations) to develop guidance for both financial institutions and asset owner-operators.

2. CAPTURE MANAGED PHASEOUT IN TRANSITION-PLANNING GUIDANCE AND PATHWAY DEVELOPMENT FOR FINANCIAL INSTITUTIONS AND CORPORATES:

It will be key that guidance for financial institution and corporate transition plans, targets, and financing policies and conditions help facilitate Managed Phaseout projects. Managed Phaseout will also need clear and credible sector- and region-specific benchmarks for the appropriate retirement point of different assets consistent with net zero. The development of such benchmarks can leverage work on sectoral pathways.

Action: GFANZ will work with the net-zero alliances, transition plan guidance developers, and related initiatives to ensure Managed Phaseout can be facilitated and consider how GFANZ work on sectoral pathways can support the need for benchmarks on net zero-aligned asset retirement timeframes.

3. ENSURE THERE ARE METRICS AND TARGETS FOR MANAGED PHASEOUT THAT SUPPORT REDUCTION IN EMISSIONS:

Managed Phaseout needs its own metrics to demonstrate ambition and progress on net zero-aligned decarbonization. This can ensure that asset owner-operators' plans for Managed Phaseout are suitably recognized (e.g., in transition ratings/metrics) and similarly, those financing asset owner-operators or the assets can demonstrate such financing is also net-zero aligned. These may require the development of Managed Phaseout alignment metrics and best-practice approaches that better capture forward-looking decarbonization and phaseout approaches (e.g., "GHG emissions reduction financed"). The GFANZ workstream on Portfolio Alignment Measurement is helping develop frameworks for forward-looking metrics.

Actions: GFANZ will endeavour to work with the financial sector net-zero alliances and other key initiatives to determine a suitable approach to develop GHG emissions tracking and targeting infrastructure to support decarbonization through Managed Phaseout. The GFANZ workstream on Portfolio Alignment Measurement will consider in its future work plan how it can support metrics relevant for a Managed Phaseout approach.

B DEVELOPING FINANCING

4. DEVELOP GUIDANCE ON FINANCING MECHANISMS:

Developing the catalog of financing mechanisms with guidance on their applicability will be a useful decision-making tool for practitioners, who may not be aware of all options or the opportunity to interact with other sources of finance.

Action: GFANZ will commission guidance on Managed Phaseout financing mechanisms.

5. INNOVATE BEYOND EXISTING FINANCING MECHANISMS:

A "crowd-sourcing" process may help innovate beyond the existing body of financing mechanisms. And linking novel mechanisms to specific proof-of-concept situations in different geographies would be a valuable addition to this field.

Action: GFANZ will consider funding a program focused on new Managed Phaseout financing mechanisms in 2023.

C IDENTIFYING RELEVANT ASSETS

6. DEVELOP A FRAMEWORK TO IDENTIFY ASSETS RELEVANT FOR A MANAGED PHASEOUT APPROACH:

It will be useful to further develop the high-level framework set out in this Report (Figure 8) to help financial institutions and their clients identify and prioritize assets for a Managed Phaseout approach as part of their net-zero transition strategies.

Action: GFANZ will commission development of an identification framework.

7. SUPPORT DEVELOPMENT OF TOOLS TO IDENTIFY ASSETS RELEVANT FOR MANAGED PHASEOUT:

An important extension of Action 6 will be to support the development of tools that enable the practical application of this framework to identify specific Managed Phaseout opportunities. Such a tool could help identify which assets need to be retired and when under different scenarios.

Action: GFANZ will identify and support climate data tool developers building on the Managed Phaseout identification framework.

D MOBILIZING HIGH-IMPACT PROJECTS

8. INCORPORATE MANAGED PHASEOUT IN COUNTRY PLATFORMS TO CATALYZE PRIVATE FINANCE TO SUPPORT CLIMATE OBJECTIVES IN EMERGING MARKETS AND DEVELOPING ECONOMIES:

It will be powerful to see practical application of the Managed Phaseout approach in net-zero transition-aligned finance. For EM&DEs, this could leverage “country platforms” to integrate Managed Phaseout principles as a way to mobilize private finance alongside public finance sources.

Action: GFANZ will engage with country platform initiatives to incorporate Managed Phaseout as part of the approaches to net zero-aligned projects and financing.

9. SET OUT PUBLIC POLICY ACTIONS THAT CAN SUPPORT MANAGED PHASEOUT AS PART OF ECONOMY-WIDE DECARBONIZATION:

Public policy can support Managed Phaseout through aspects such as climate disclosure and accounting/audit requirements, mechanisms that seek to finance decarbonization, and greater clarity on climate policy (for asset life/stranding risks).³¹

Action: The GFANZ workstream on Net-zero Public Policy will engage the official sector on public policy actions that can help support Managed Phaseout activity as part of economy-wide decarbonization.³²

³¹ For example: European Commission. [EU taxonomy for sustainable activities](#), 2020.

³² Source: GFANZ. [Call to Action](#), 2021.

Appendix A: Summary of net-zero commitments across the financial sector

Net Zero Asset Managers initiative (NZAM)	My organization commits to support the goal of net-zero GHG emissions by 2050, in line with global efforts to limit warming to 1.5 degrees C (“net-zero emissions by 2050 or sooner”). It also commits to support investing aligned with net-zero emissions by 2050 or sooner.
Net-Zero Asset Owner Alliance (NZAOA)	My organization commits to transitioning its investment portfolios to net-zero GHG emissions by 2050 consistent with a maximum temperature rise of 1.5 degrees C above pre-industrial levels, taking into account the best available scientific knowledge, including findings of the IPCC, and regularly reporting on progress, including establishing intermediate targets every five years.
Net-Zero Banking Alliance (NZBA)	We commit to transition all operational and attributable GHG emissions from our lending and investment portfolios to align with pathways to net zero by midcentury, or sooner, including CO ₂ emissions reaching net zero at the latest by 2050, consistent with a maximum temperature rise of 1.5 degrees C above pre-industrial levels by 2100.
Net Zero Financial Service Providers Alliance (NZFSPA)	My organization commits to support the goal of net-zero greenhouse gas emissions by 2050 or sooner, consistent with a maximum average global temperature rise of 1.5 degrees C above pre-industrial levels.
Net-Zero Insurance Alliance (NZIA)	My company commits to transitioning all operational and attributable greenhouse gas emissions from its insurance and reinsurance underwriting portfolios to net-zero emissions by 2050 consistent with a maximum temperature rise of 1.5 degrees C above pre-industrial levels by 2100 in order to contribute to the implementation of the COP21 Paris Agreement.
Net Zero Investment Consultants Initiative (NZICI)	With respect to our own business operations, we will set emissions reduction targets across all our operational emissions in line with 1.5 degrees C scenarios and anchored to the SBTi framework for operational emissions.
Paris Aligned Investment Initiative (PAII)	My institution commits to the following, consistent with our fiduciary obligations: setting objectives and targets, including an interim target for 2030 or sooner for reducing Scopes 1, 2, and 3 emissions associated with our portfolios, and setting a target for increasing investment in climate solutions, consistent with a fair share of the 50% global reduction in CO ₂ identified as a requirement in the IPCC special report on global warming of 1.5 degrees C.

Appendix B: Examples of retirement transactions

This catalog is not intended to be comprehensive, nor suggest that these examples should be considered net-zero aligned, but rather illustrative of some different permutations that Managed Phaseout could take and to offer certain lessons

and templates that could be considered as part of future transactions. Many of these examples focus on coal assets, but may have broader applicability across high-emitting assets.

	ORGANIZATION	SECTOR	FINANCIAL MECHANISM	DESCRIPTION
1	Asian Development Bank (ADB) ³³	Coal	Bad bank	ADB created a blended coal-reduction fund to purchase and manage a country's coal assets. The mechanism was created in partnership with Prudential, Citi, HSBC, and Blackrock Real Assets. The group plans to create public-private partnerships to buy out coal plants and wind them down within 15 years, far sooner than their usual life expectancy, giving workers time to retire or find new jobs and allowing countries to shift to renewable energy sources.
2	German Federal Network Agency (BNetzA) ³⁴	Coal	Reverse auction	BNetzA hosts reverse auctions for hard coal plant owners to close 13GW of capacity. There is a maximum price set and capacity at yearly auctions. The 2020 auction was oversubscribed and allowed the shutdown of 4.8GW at an all-in cost of €300 million.
3	Climate Investment Funds (CIF) and Inter-American Development Bank (IDB) ³⁵	Coal	Sustainability-linked loan	The model puts monetary value on the GHG emissions that are avoided by decarbonization efforts. Thus, when a coal plant is closed and replaced with clean technology production, the reduction in GHG emissions this entails will be calculated and offered to the company or companies responsible. In February 2021, the first financial package was awarded as part of this model. ENGIE Energía Chile received US\$125 million, comprising a loan from the IDB and financing from CIF's Clean Technology Fund (CTF) and the Chinese Fund for Co-financing in Latin America and the Caribbean.

³³ Source: Asian Development Bank. [Energy Transition Mechanism](#), 2022.

³⁴ Source: Bundesnetzagentur. [Ergebnisse der ersten Ausschreibung zur Reduzierung der Kohleverstromung](#), 2020.

³⁵ Source: Climate Investment Funds. [A world first: new financial model drives Chile's decarbonization](#), 2021.

	ORGANIZATION	SECTOR	FINANCIAL MECHANISM	DESCRIPTION
4	Eskom³⁶	Coal	Sustainability-linked loan	Eskom has proposed a \$10 billion plan for Just Energy Transition Partnership (JETP) in South Africa. The company has significant debt and is considering a multi-lender loan facility from development finance institutions that would be paid out in segments over a number of years. This could also include debt-for-climate swap, orchestrated by the IMF. The utility is considering 8,017 MW of projects, ranging from wind power to solar, hydropower and gas. Loans would be provided on a "pay-for-performance" basis.
5	Xcel Energy³⁷	Coal	Ratepayer-backed securitization and tax credit	Xcel announced a pivot from fossil fuels to renewables given the changing economics of power generation. The company announced the "Steel for Fuel" plan to increase earnings by shifting capital from uneconomic fossil-fuel generation plants requiring very large fuel inputs toward plants that run on solar and wind. To further enable this, Xcel will leverage production and investment tax credits.
6	U.S. states of California, Colorado, Montana, New Mexico, North Carolina³⁸	Coal	Ratepayer-backed securitization and tax credit	California, Colorado, Montana, and New Mexico passed legislation in 2018–2019 authorizing securitization to refinance uneconomic but undepreciated power plants—usually coal—and protect consumers. In New Mexico, for example, securitization will be used to finance utility cost recovery for the retirement of San Juan Generating Station, transition financing for coal communities, and utility reinvestment in clean energy. A total of ten states have active utility securitization laws, with five considering legislation.
7	Consumers Energy³⁹	Coal	Securitization	In September 2020, the utility filed to issue low-interest securitization bonds for costs mainly associated with the retirement of two coal-fired power plants.
8	Energy Australia⁴⁰	Coal	n/a	EnergyAustralia announced it would close the country's oldest, dirtiest coal plant four years ahead of schedule. The company will build a large energy storage battery for renewables on the site after the closure.
9	We Energies⁴¹	Coal	Ratepayer-backed securitization	We Energies authorized to issue \$100 million of environmental trust bonds for the remaining investment in the retired Pleasant Prairie Power Plant. This is expected to deliver \$40 million in customer savings over time.

36 Source: Eskom. [Just Energy Transition Fact Sheet](#), 2021.

37 Source: Xcel. [Steel for Fuel. Renewable Energy Expansion](#), 2021.

38 Source: PowerMag. [Securitization a Useful Financing Tool for Transition From Coal](#), 2020.

39 Source: Citizens Utility Board of Michigan. [Securitization Cases](#), 2020.

40 Source: EnergyAustralia. [EnergyAustralia powers ahead with energy transition](#), 2021.

41 Source: WPR. [Pleasant Prairie Power Plant Ends Operation](#), 2018.

	ORGANIZATION	SECTOR	FINANCIAL MECHANISM	DESCRIPTION
10	Alliant Energy⁴²	Coal	Ratepayer-backed securitization	Alliant Energy announced plans to close its Columbia Energy Center—the last of its coal-fired power plants in Wisconsin—by 2024 using securitization. The closing of the plant was expected after Alliant Energy announced plans in 2019 to generate 1,000 MW of electricity from solar power by 2023. The utility is on track to become the largest solar producer in the state. The Citizens Utility Board and Wisconsin Industrial Energy Group, which represents large customers, encourage the Public Service Commission to use securitization to reduce ratepayer impact from the cost of coal power plants that have been shut down.
11	Total⁴³	Oil and Gas	n/a	Total announced it is writing off \$9.3 billion worth of tar sands assets in Alberta and categorized two of its tar sands projects as stranded assets because producing them is incompatible with the company's goal of achieving carbon neutrality by 2050.
12	ArcelorMittal Dofasco⁴⁴	Steel	Single-asset refinance	Canadian federal investment of \$400 million in ArcelorMittal Dofasco G.P., Canada's largest producer of flat-rolled steel to support a \$1.8 billion project to phase out coal-fired steelmaking at its facilities in Hamilton, Ontario, and develop a direct reduced iron-fed electric arc furnace in its place.
13	U.S. government⁴⁵	Transportation	Government subsidy	"Cash for Clunkers" was a \$3 billion U.S. program operational in 2009 for car owners to trade in their old, less fuel-efficient vehicles and buy more fuel-efficient vehicles.

42 Source: Alliant Energy. [The end of an era: Alliant Energy announces retirement dates for Columbia Energy Center](#), 2021.

43 CBC. [Total writes off \\$9.3B in oilsands assets, cancels Canadian oil lobby membership](#), 2020.

44 Source: CBC. [\\$500M boost for ArcelorMittal Dofasco secures future steel jobs for Hamilton, province says](#), 2022.

45 Source: Investopedia. [Cash for Clunkers](#), 2021.

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