DEPARTMENT OF FORESTRY, FISHERIES AND THE ENVIRONMENT

NO. 6477 **1 August 2025**

CLIMATE CHANGE ACT, 2024 (ACT NO. 22 OF 2024)

DRAFT TECHNICAL GUIDELINES FOR THE NATIONAL GREENHOUSE GAS CARBON BUDGET AND MITIGATION PLAN REGULATIONS

I, Dion Travers George, Minister of Forestry, Fisheries and the Environment, hereby in terms of sections 30(2)(a)(i), 26, 27, 31, and 32 of the Climate Change Act, 2024 (Act No. 22 of 2024), publish the draft Technical Guidelines for the National Greenhouse Gas Carbon Budget and Mitigation Plan Regulations for public comment, as set out in the Schedule hereto.

The purpose of the Technical Guidelines is to support the implementation of the National Greenhouse Gas Carbon Budget and Mitigation Plan Regulations. The draft Technical Guidelines provide for the following:

(a) The structure and methodology of the Carbon Budgeting and Mitigation Plan program;
(b) The Competent Authority's responsibility and the internal review and validation process that the Competent Authority will follow;
(c) The Data Provider's responsibilities;
(d) The independent verification and validation process to be followed;
(e) Budget allocation to new entrants; and
(f) The progress reporting and compliance requirements.

Members of the public are invited to submit written comments within 60 (sixty) days from the date of publication of this notice in the *Government Gazette* or newspapers, whichever date is the last date, to the following addresses:

By post to: The Director-General
Department of Forestry, Fisheries and the Environment
Attention: Mr Jongikhaya Witi
Private Bag X447
PRETORIA
0001

By hand at: Reception, Environment House, 473 Steve Biko Road, Arcadia, Pretoria

By e-mail: SETSComments@dffe.gov.za

Members of the public can access the draft Technical Guidelines from the Departmental website at www.dffe.gov.za, under publications for comment or www.gpwonline.co.za

Any inquiries in connection with the draft Technical Guidelines can be directed to Mr Jongikhaya Witi by telephone: 012 399 9048 or by email: jwiti@dffe.gov.za

Comments received after the closing date may not be considered.

The Department of Forestry, Fisheries and the Environment complies with the Protection of Personal Information Act, 2013 (Act No. 4 of 2013). Comments received and responses thereto are collated into a comments and response report which will be made available to the public as part of the consultation process. If a commenting party has any objection to his or her name, or the name of the represented company/ organisation, being made publicly available in the comments and responses report, such objection should be highlighted in bold as part of the comments submitted in response to this Government Notice.

DR DION TRAVERS GEORGE
MINISTER OF FORESTRY, FISHERIES AND THE ENVIRONMENT

SCHEDULE

Technical Guidelines for the National Greenhouse Gas Carbon Budget and Mitigation Plan Regulations

A companion to the National Greenhouse Gas Carbon Budget and Mitigation Plan Regulations

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1. INTRODUCTION

The Department of Forestry, Fisheries and the Environment, promulgated into law the National Greenhouse Gas Carbon Budget and Mitigation Plan Regulations (CB/MP Regulations, hereafter referred to as CB/MP Regulations) under section 27 of the National Climate Change Act, 2024 (Act No. 22 of 2024) and their subsequent amendments. To provide further guidance and to ensure good quality and accurate submissions as part of the carbon budget and mitigation plan programme, the CB/MP Regulations make provision for the technical guidelines to guide the implementation of thereof.

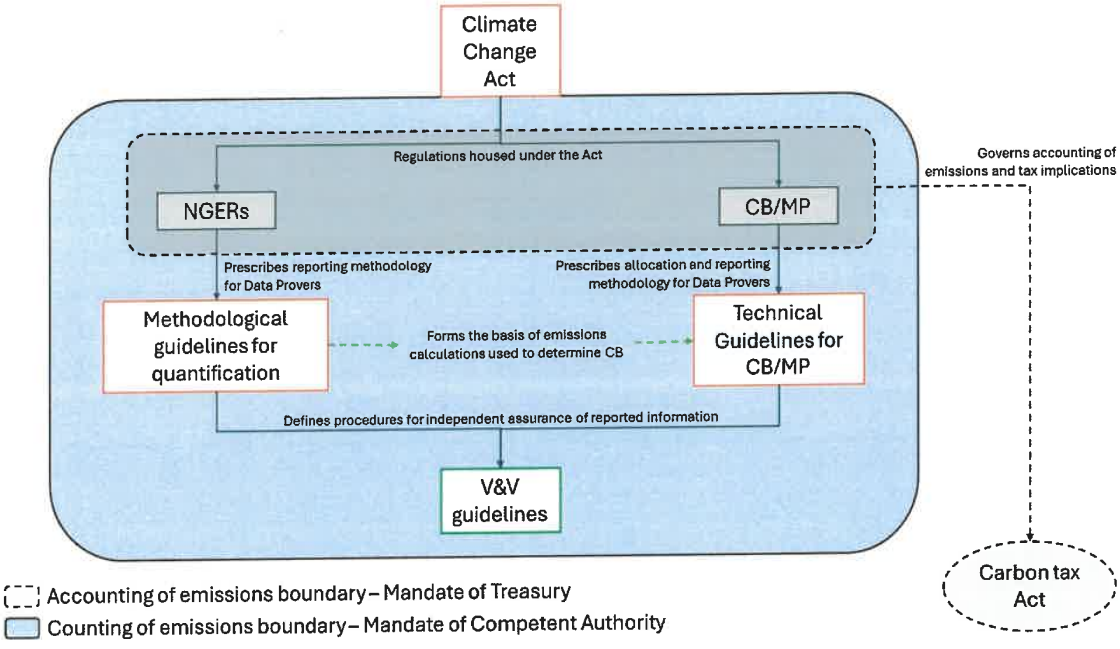
The technical guidelines to the CB/MP Regulations set out to describe the following processes involved:

- Data collection process
- The carbon budget allocation methodologies
- Developing mitigation plans
- The verification and validation requirements of carbon budgets and mitigation plans
- Annual progress reporting and compliance requirements for the carbon budget and mitigation plans

All terms defined in the CB/MP Regulations and used in the technical guidelines have the same meaning as in the CB/MP Regulations. The technical guideline and its associates have areas of linkage to other climate-related regulations/documentation/guidelines as depicted.

Related Document	Context
Climate Change Act, 2024 (Act No. 22 of 2024)	Enables the development of an effective climate change response and a long-term just transition to a low-carbon and climate-resilient economy & society.
National Greenhouse Gas Carbon Budget and Mitigation Plan Regulations	Aims to implement sections 26 and 27 of the Act, govern the determination, review, compliance, and enforcement of carbon budgets and mitigation plans, ensure alignment with South Africa's international climate reporting obligations under the UNFCCC, and support the overall execution of the Act and related policies.
Technical Guidelines or the National Greenhouse Gas Carbon Budget And Mitigation Plan Regulations	An accompaniment to the National Greenhouse Gas Carbon Budget and Mitigation Plan Regulations
National Greenhouse Gas Emission Reporting Regulations	Established the legal framework for collecting and reporting GHG data, there should be alignment with data used in NGERs and CB reporting.
Methodological Guideline for the Quantification of GHG Emissions	Companion to the NGER and provides additional guidance to data providers for calculating GHG emissions
Technical Guidelines for the Validation And Verification of GHG Emissions	Sets out the processes involved in verifying and validating GHG emissions data and submissions made by data providers.

Related Document	Context
Carbon Tax Act , 2019 (Act No. 15 of 2019)	Key legislation designed to put a price on carbon emissions to drive emissions reduction and support the country's climate change commitments



The purpose of the Technical Guidelines is to support the implementation of the mandatory carbon budget regime in South Africa. The voluntary phase of the carbon budget programme was applicable for the period 2016 to 2025 where data providers could voluntarily submit a carbon budget to the Competent Authority and claim a five percent reduction on their carbon tax obligations. There was no methodology prescribed for the voluntary budget phase. The technical guideline provides direction to the Competent Authority, Data Providers, and Independent Assessors on the processes described above and details the responsibilities of these key role players. More specifically the Technical Guidelines outline:

- The structure and methodology of the CB/MP program
- The Competent Authority's responsibility and the internal review and validation process that the Competent Authority will follow
- The Data Provider's responsibilities
- The independent verification and validation process to be followed
- Budget allocation to new entrants
- The progress reporting and compliance requirements

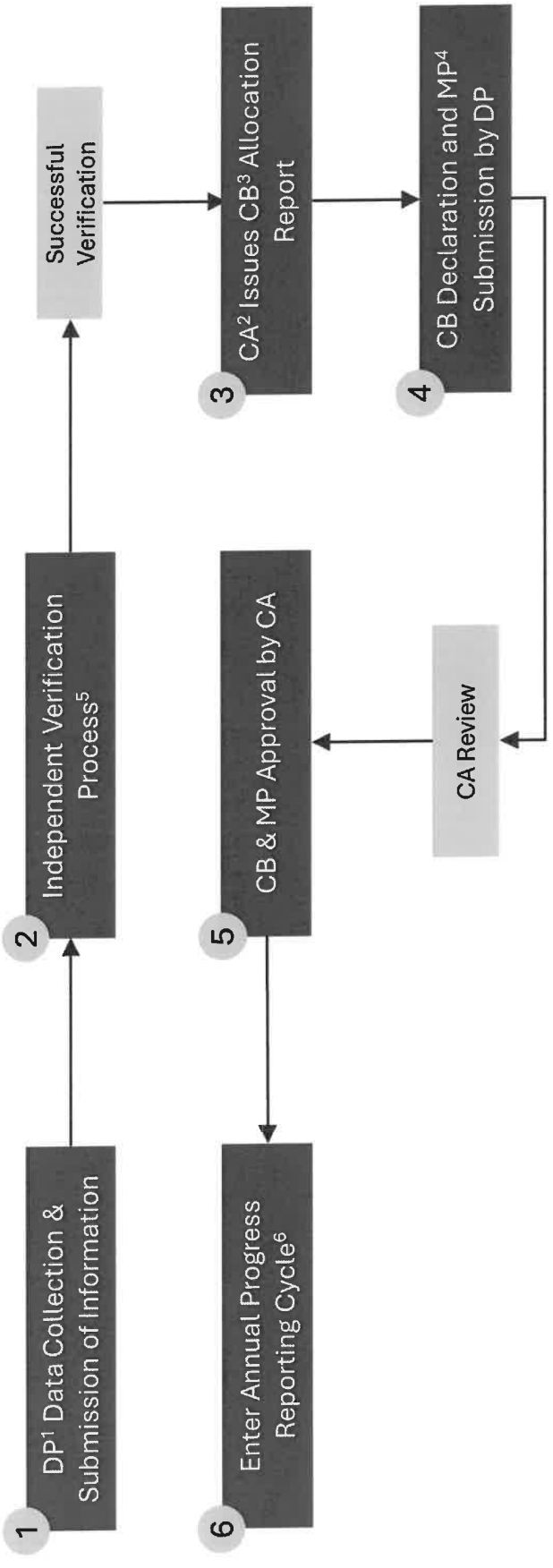


Figure 1: Carbon Budget and Mitigation Plan Allocation and Approval Process

[1] DP = Data Provider

[2] CA = Competent Authority

[3] CB = Carbon Budget

[4] MP = Mitigation Plan

[5] Independent Verification Process flow diagram available in Section 9

[6] Annual Progress Reporting flow diagram available in Section 8

Process Stage	Details
1. Data collection and Submission of Information by Data Provider	The data provider is required to collect and store the relevant data and supporting evidence related to its GHG emissions. This information is to be submitted to facilitate the Carbon Budget Allocation process. As part of this submission, the Data Provider will also submit information related to their Mitigation Plan and the measures involved. The competent authority will conduct post-submission checks.
2. Independent Validation and Verification	All Carbon Budgets and Mitigation Plans will be subject to Independent Validation and Verification at the start of each commitment period. Information submitted in stage 1 will be subject to independent verification.
3. Competent Authority Issues Carbon Budget Allocation Report	Once the information submitted by Data Provider undergoes a successful independent verification, the Competent Authority will use a defined allocation methodology to allocate a carbon budget to a data provider who must accept/request a review of the allocated budget.
4. Carbon Budget Declaration and Mitigation Plan Submission	Once a data provider has accepted its budget allocation, it must prepare and submit its Carbon Budget declaration for the commitment period to the Competent Authority. Accompanying the Carbon Budget declaration, Data Providers must also submit a Mitigation Plan for review and approval.
5. Carbon Budget & Mitigation Plan Approval by Competent Authority	The Competent Authority will review the Carbon Budget declaration and Mitigation Plan to ensure it is aligned with the prescribed methodologies. Once reviewed, Carbon Budgets and Mitigation Plans will receive final approval from the Competent Authority.
6. Annual Progress Reporting Cycle	Once the commitment period commences, Data Providers must report annually on progress to the Competent Authority.

UPDATES TO THE TECHNICAL GUIDELINES

Periodic reviews examining the design and implementation of the CB/MP Regulations to assess its effectiveness are crucial to its long-term success. This process is key to identifying the modification necessary to ensure that the CB/MP Regulations are meeting their purpose and to ensure that the programme remains relevant to evolving needs.

It is recognised that the Technical Guidelines will need to be updated as amendments are made to methodologies, reporting requirements, and mitigation strategies as a result of a maturing CB/MP program and improved reporting and compliance by Data Providers. The Competent Authority will

conduct periodic reviews of the Technical Guidelines in consultation with affected stakeholders to determine if any amendments or additions are required.

PHASES OF THE CARBON BUDGET AND MITIGATION PLAN REGULATIONS

The Carbon Budget and Mitigation Plans will be applicable for 3 consecutive commitment periods of 5 years each. These periods will use available historical information as the basis to inform their allocations and accepted mitigation measures. Therefore, the allocation process for a particular commitment period will commence at least 2 years before the period begins. As the commitment periods progress, allocations will become more stringent.

It is widely recognised that establishing a credible and robust national carbon budget and mitigation plan programme is resource and time-intensive. Across the commitment periods, the Competent Authority intends to uphold the principle of continuous improvement in order to gradually improve the accuracy, completeness, consistency, comparability, and transparency of adherence to the allocated carbon budget and progress made against the mitigation plans over time.

2. KEY CONCEPTS

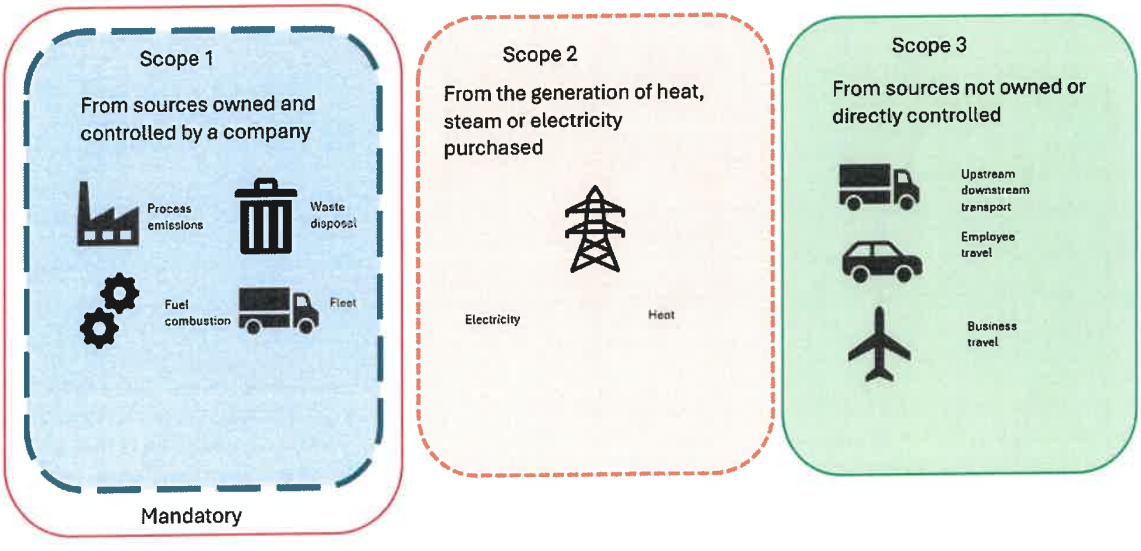
Scope of emissions

The concept of the 3 Scopes of emissions, Scope 1 (Direct emissions), Scope 2(Indirect emissions), and Scope 3 (Value chain emissions) was first defined by the Greenhouse Gas Protocol, a globally recognised standard for measuring and managing GHG emissions developed through a partnership between the World resource institute (WRI) and the World Business council for sustainable development (WBCSD). The definitions for each scope are provided by the regulation and below is an illustration of emissions per scope.

"scope 1 emissions" means direct greenhouse gas emissions that occur from emissions sources that are controlled or owned by an organization or alternatively under the operational control of the data provider (e.g., emissions associated with fuel combustion in boilers, furnaces, vehicles, emissions from industrial processes or fugitive emissions;

"scope 2 emissions" means the greenhouse gas emissions from the generation of purchased electricity consumed by the data provider. These are also termed indirect emissions. Purchased electricity is electricity purchased and brought within the operational control of the data boundary;

"scope 3 emissions" means emissions resulting from assets not owned or controlled by the data provider, but that the data provider indirectly affects in its value chain. The value chain consists of both upstream and downstream activities. Scope 3 emissions include all sources not within the Scope 1 and 2 boundaries;



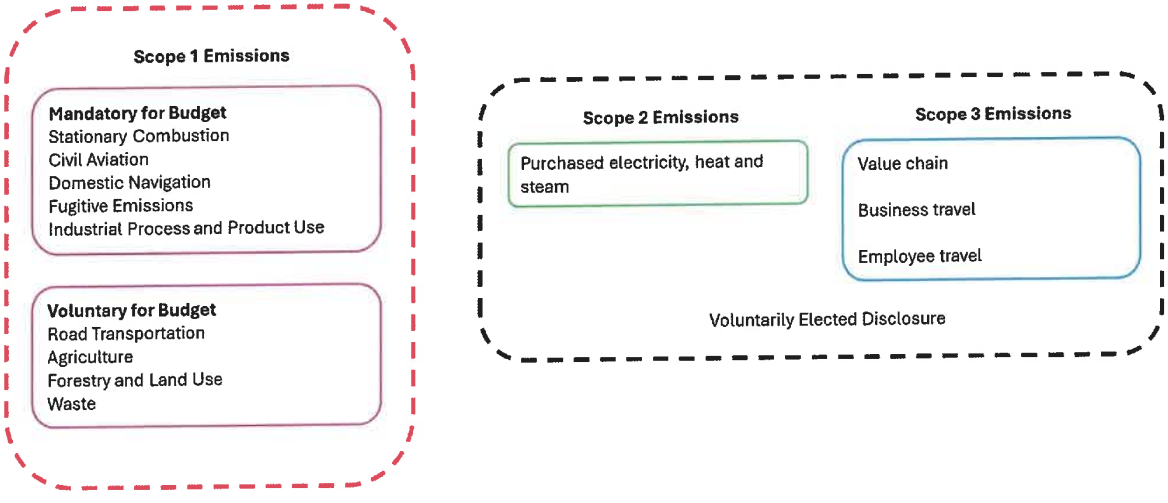
Carbon budget, carbon budget allocation, carbon budget allocation report

Carbon Budget:

This term refers to the total allowance of greenhouse gas emissions that is assigned to a data provider for a specified commitment period. The carbon budget specifically covers only the direct emissions that fall under the operational control of the data provider as per the listed activities i.e. Scope 1 emissions.

While indirect emissions may be recorded (Scope 2 and Scope 3), they are not included in the carbon budget for allocation purposes. Some Scope 1 emissions are not mandatory, such as mobile road transportation and waste, but may be voluntarily included into one's budget. Once a voluntary emission source is elected, it remains applicable for all 3 commitment periods.

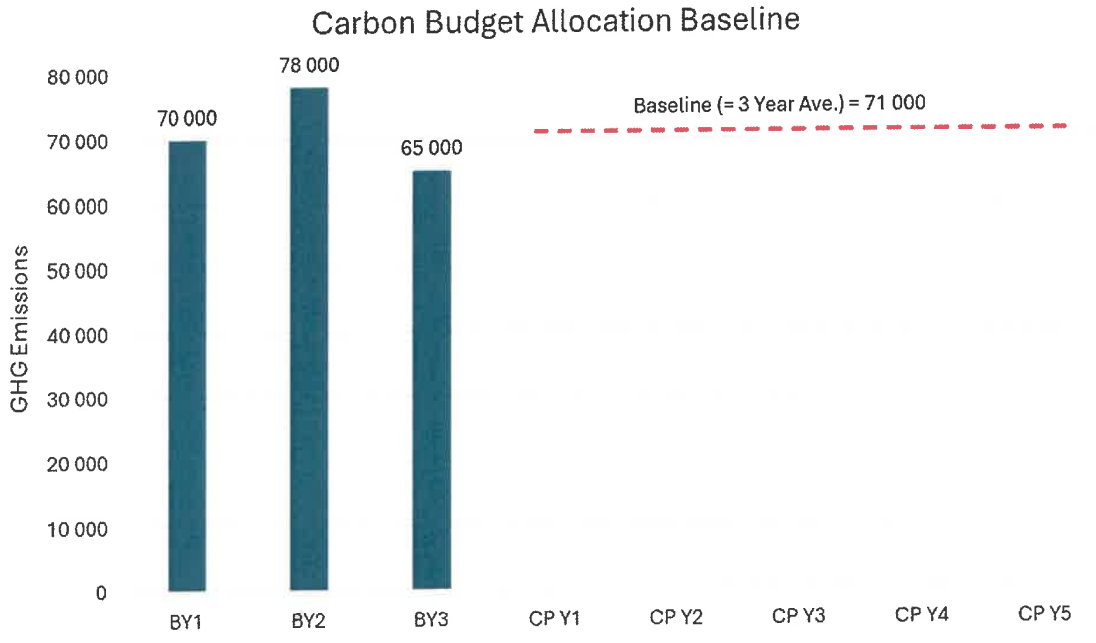
A data provider may elect to disclose emissions related to any of the scopes. When a data provider elects to disclose Scope 2 emissions, these emissions should be calculated using the Grid Emission Factor Derived by the Competent Authority. All data collection procedures (See Section 4) are applicable to mandatory emissions covered by the Carbon Budget as well as elected emissions.



Baseline

The baseline is defined in the regulation as the calculated emissions profiles that represent the status quo, or the typical emissions levels associated with a data provider's activities based on historical emissions data. The baseline is the reference point from which emissions reductions can be measured and is essential in determining the carbon budget under future scenarios or commitment periods. The baseline helps to quantify the business-as-usual scenarios which assume no mitigation actions are taken beyond what is already in place. For the carbon budget, the baseline establishes the starting point for measuring emissions reduction and provides a reference for comparing actual emissions over time. Comparison against the baselines is essential to assess if carbon budgets & emissions reduction targets are being met.

Baselines are derived from historical emissions data over a defined period (e.g. 3 or 5 years) averaged to reflect normal operations. The data provider is responsible for supplying accurate and comprehensive historical emissions data from their listed activities (see Section 3 for further detail). Once the baseline is established it sets the foundation for the carbon budget allocation (irrespective of the approach taken under the Tiered methodological approach to carbon budgets – See Section 5 for further detail). The carbon budget is set lower than the baseline to ensure emissions reduction occurs and mitigation actions are undertaken.



Where BY = Baseline Year (data acquired from SAGERS reporting program). Must be 3 representative years of the previous 5-year period.

CP Y = Commitment Period Year

Adjustments to a company's baseline may be allowed under certain circumstances such as new installations/change to installations (see Section 7 for new entrant consideration) or dramatic production capacity changes. When such dramatic changes occur, the baseline may need to be adjusted to reflect these changes more accurately.

Carbon Budget Allocation – Section 5 for further detail

This concept refers to the specific amount of the carbon budget that has been allocated or allowed to a Data Provider by the Competent Authority. This allocation is made in accordance with Regulation 8 and is essential for managing the emissions allowances granted to different entities.

The threshold for reporting and carbon budget is allocated at a company level and should be traceable to a facility level based on operational control (see Operational control & figure). This ensures that companies are not simply reporting their emissions as an aggregated total for reporting or carbon budget purposes, but rather, provide visibility of the source of where emissions are occurring across their different facilities. This granularity improves accountability and allows the competent authority to verify whether each facility is adhering to its allocated portion of the overall carbon budget.

A carbon budget is set at the Company level, meaning that an organization receives a total emissions allowance in tonnes of carbon dioxide equivalent (tCO_2e) for a commitment period. This budget reflects the maximum amount of GHGs the entire company is allowed to emit based on its baseline emission, mitigation potential, and other regulatory threshold (like the Air emission licenses). To manage and achieve a budget requires disaggregation of emissions down to individual facilities based on operational control, as this is where the GHG emissions actually occur. The company must be able to attribute portions of the overall carbon budget to each of its facilities. As such the company must ensure that emissions from individual facilities are monitored and reported in a manner that aligns with the overall carbon budget and that the responsibility for emissions reduction is distributed appropriately

Carbon Budget Allocation Report:

This report details the carbon budget that has been allocated or permitted to a data provider. It is determined and provided by the Competent Authority and must adhere to the format specified in Annexure XX. This report serves as an official documentation of the emissions allowances allocated to the data provider.

Commitment period

A "commitment period" refers to a five-year time frame during which a data provider is required to adhere to the carbon budget allocated to them, as well as implement the planned mitigation measures that have been approved by the Competent Authority. Throughout this period, the data provider must meet the specified emissions limits and report their progress accordingly.

The "first commitment period" is the initial operational five-year phase, beginning on 1 January 2026 and ending on 31 December 2030, during which a data provider must follow the allocated carbon budget and mitigation strategies approved by the Competent Authority. This period establishes the starting point for adherence to carbon budget regulations.

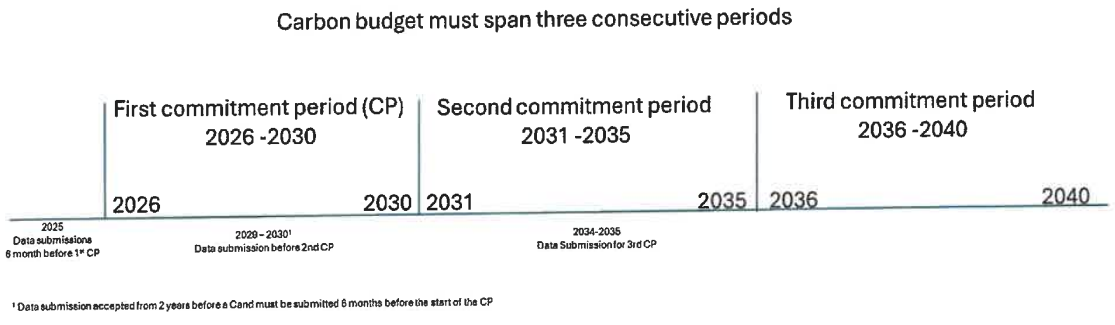
To facilitate the determination of a carbon budget allocation, data providers identified under regulation 5 must submit information on IPCC (Intergovernmental Panel on Climate Change) emission sources, related greenhouse gas emissions, and activity data for all facilities under their control. This submission must be done at least one year prior to the first commitment period, and at least two years before the start of each successive commitment period, following the data and format requirements specified in Annexure 5 of the Regulations.

Reporting and Carbon Budget Allocation Deadlines

- For the first commitment period: The Carbon Budget Allocation Report must be provided to the data provider more than six months before the start of the first commitment period.
- For subsequent periods: The Carbon Budget Allocation Report must be provided no later than six months before the commencement of each new commitment period, but ideally during the preceding year.

After each commitment period, data providers are required to submit their actual production and output data, as specified in regulation 14(4). This data is used by the Competent Authority to help determine the carbon budget allocation for the next commitment period. The carbon budget allocation from the concluded period will be "retired" (no longer applicable), and a new allocation will be provided for the following commitment period.

A carbon budget must span at least three consecutive commitment periods. The carbon budget must also specify the maximum allowable greenhouse gas emissions for the first commitment period, providing clarity on the emissions limits that the data provider must meet during this initial phase.



Mitigation plan, mitigation measures and mitigation potential analysis

The primary objective of the mitigation plan is to outline specific measures that a data provider will take to reduce mandatory Scope 1 greenhouse gas emissions, ensuring compliance with the allocated carbon budget for a given commitment period. Optional reporting of Scope 2 and Scope 3 emissions is allowed.

A mitigation plan must include the following key components:

- **Data Provider Information**: Details about the data provider, following the Greenhouse Gas Emissions Reporting Regulations program.
- **Production Process Description**: A detailed account of the production processes and activities generating greenhouse gases, following regulation 5(1).
- **Greenhouse Gas Emissions**: Identification of gases generated from production processes listed in Annexure 1, along with IPCC emission sources in accordance with the National Greenhouse Gas Emission Reporting Regulations.
- **Mitigation Measures**: A description of measures to reduce greenhouse gas emissions from the baseline over the commitment period. Each facility and IPCC emission source involved must be specified.
- **Progress Indicators**: The indicators, activity data, and assumptions used to measure progress, including the methods used to estimate greenhouse gas reductions.
- **Scope 1 Mitigation**: Measures for Scope 1 emissions, ready for immediate implementation, with board-level approval.
- **Scope 2 and 3 Mitigation**: These may be recorded for noting but do not require immediate implementation.

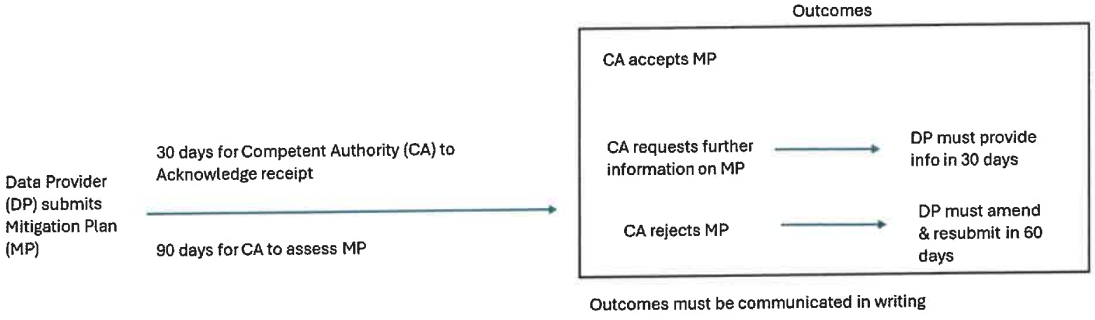
Approval and Submission Process

Data providers must submit a draft mitigation plan during the carbon budget allocation submission process, outlining intended measures. Plans may include measures under research, feasibility studies, pilot projects, or those undergoing environmental impact assessments. These measures will be recorded but not required for immediate implementation.

Once submitted, the Competent Authority must acknowledge receipt within 30 days and assess the plan within 90 days. The plan is either approved or rejected, with reasons for rejection communicated in writing. Data providers must amend and resubmit the plan if rejected within 60 days. If additional information is

required, the data provider must supply it within 30 days, with the processing time paused until all required data is provided.

Existing pollution prevention plans, as stipulated under the National Environmental Management: Air Quality Act (2004) and the National Pollution Prevention Plans Regulations (2017), are deemed to be acceptable mitigation plans for the first commitment period but must be reviewed and approved by the Competent Authority.



Mandatory Review and Updates

The Competent Authority will review the mitigation plan at least once every five years, in response to changes in the carbon budget allocation. If the carbon budget allocation is modified, the mitigation plan must be revised. The new plan must ensure that previously approved commitments are not lowered. At the end of the commitment period, the plan must be reviewed and updated for the next period, ensuring alignment with the new carbon budget.

Data providers must report progress on the mitigation plan in conjunction with compliance reporting for the carbon budget. Data providers must submit the mitigation plan at least one year before the start of the commitment period. Data providers are required to implement the approved mitigation plan and demonstrate compliance with the specified measures. The mitigation plan is valid only for the relevant commitment period and must be reviewed at the end of each period.

Operational control

Operational control refers to a company or data provider having full authority to establish and implement operating policies over its facilities or activities. This means the data provider, or one of its subsidiaries, can direct the day-to-day and long-term decisions related to the facility's operation. The control must be substantial enough to allow the data provider to manage environmental impacts and emissions, in line with its carbon budget obligations. Data providers must define their reporting boundaries based on operational control within South Africa's jurisdiction. This means that the provider should report emissions for all facilities and activities where it has operational control, regardless of whether it owns the facilities or not.

Suppose a data provider transfers ownership or operational control of a facility, or there is a change in the facility's capacity due to the discontinuation or expansion of activities. In that case, the provider must notify the Competent Authority in writing within 30 days. If operational control or ownership is transferred to a new data provider, the new owner or operator must register as a data provider under regulation 6 within 30 days. Alternatively, if the new operator is already registered, they must notify the Competent Authority about changes to their existing status as a data provider (i.e., taking over new facilities or activities).

This includes scenarios such as:

- Discontinuation or expansion of an activity (e.g., increasing production capacity or shutting down a production line).
- Temporary closure for care and maintenance.
- Indefinite shutdown of certain facilities.

The purpose of this notification is to ensure the Competent Authority is aware of the changes in emissions sources and can adjust the carbon budget or mitigation plans accordingly.

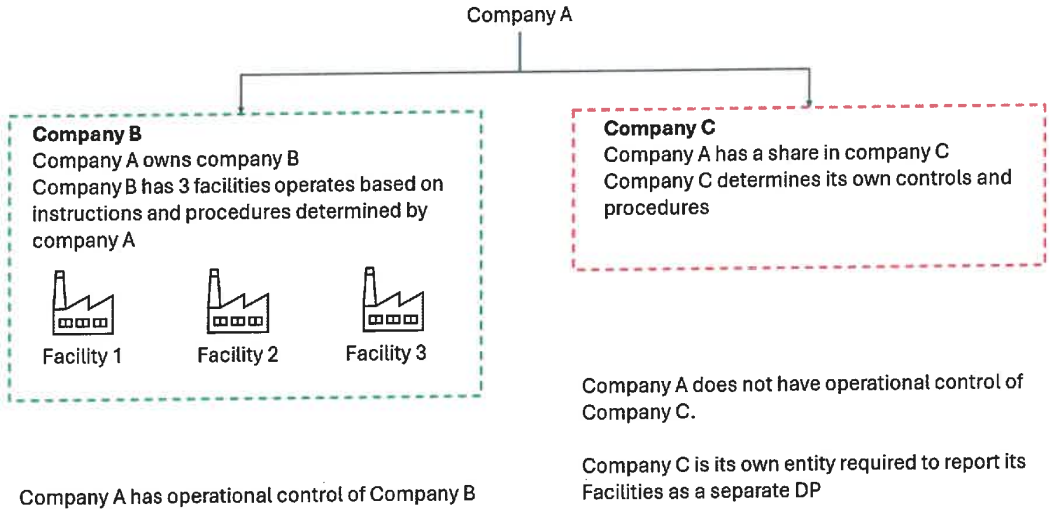
Examples of Operational Control

- A company is considered to have operational control over a facility if it has the authority to:
    - Establish and enforce safety, environmental, and operational policies.
    - Make decisions about energy use, waste management, and emissions reduction strategies.
- A subsidiary of a larger company may also have operational control if it can make these decisions independently of the parent company.

Reporting Requirements

Once operational control is established or transferred, the new operator must ensure timely registration or notification to the Competent Authority within the specified 30-day window. The company must continuously monitor and report emissions from any facilities under its operational control, in alignment with its carbon budget.

The requirement to notify the Competent Authority applies equally to temporary closures (for care and maintenance) and indefinite shutdowns of facilities. This ensures that the carbon budget and mitigation plans accurately reflect the operational status of facilities.



Reporting, reporting cycle/reporting period

The Annual Progress Report (APR) refers to the mandatory report that data providers must submit to the Competent Authority by 31 March each year. It covers compliance and progress with the carbon budget and mitigation plan for the preceding calendar year. This report tracks progress on the data provider's carbon budget and the implementation of its approved mitigation measures. The carbon budget will ne corrected annually to account for actual production as the carbon budget allocated manages carbon intensity and not production.

Reporting cycle: January to March of the year following the reporting year.

Reporting period: The previous calendar year from January to December.

Reporting must be done at both the facility level and aggregated at the data provider level. Reporting triggers, such as the emissions threshold, apply to the data provider level, not the individual facility level. Data providers are required to monitor and evaluate their compliance with the carbon budget and mitigation plan throughout the year. Annual Progress Reports must reflect this ongoing evaluation and document progress toward emissions reduction targets.

Annual reporting is to be submitted through a web-based platform specifically designed for carbon budget reporting. In cases where the platform is unavailable, the Competent Authority may issue instructions via the Government Gazette to use alternative reporting methods.

- Information Required in the Annual Progress Report
- Quantitative data on emissions and reductions achieved.
- Qualitative information to enhance transparency, as specified in Annexure 8.

- Facility-level and data provider-level breakdowns of progress.
- Indicators used to track progress on each mitigation measure.
- Methods and assumptions used for calculating emissions and reductions.

Alongside the carbon budget compliance report, data providers must submit an annual progress report on the implementation of the approved mitigation plan.

This report must cover:

- Actions taken to implement the mitigation measures.
- The projected and actual emissions reductions achieved.

In the final year of the commitment period, the APR must include a Final Progress Report that provides a comprehensive summary of compliance over the entire commitment period (five years).

The Final Progress Report must include:

- Actual activity data (e.g., production output) for the full five-year commitment period.
- Qualitative information as specified in Annexure 8 to ensure transparency.

The Competent Authority will use this data to reassess emissions if a product-level benchmarking approach was applied.

Annual Progress Reports on carbon budget compliance and mitigation plan implementation may be combined into a single submission. This simplifies reporting and ensures that both compliance aspects are reviewed simultaneously by the Competent Authority. The same tiered hierarchical methodological approach used to determine the carbon budget allocation (in Regulation 10) must be applied for annual progress reporting. This ensures consistency in the method of emissions estimation and reporting.

In the event that the Competent Authority requires additional data or information to verify the report's content, the data provider must respond promptly and provide the requested data. The Competent Authority may use product-level benchmarking or other methods to re-estimate CO_2-equivalent emissions for the commitment period, based on the actual activity data provided in the Final Progress Report. An example of how the carbon budget is adjusted annually due to actual production is presented below.

- At the start of the commitment period, data providers provide the forecasted production for the commitment period. The competent authority allocates a carbon budget using this information. Using a production forecast of 1 000 tonnes and a carbon intensity of 1.44 tCO_2e/tonne product, a carbon budget of 1 440 tCO_2e is allocated to a Data Provider.
- On an annual basis the actual production is reported by the Data Provider. Using this information, the allocated carbon budget is adjusted by the Competent Authority to correct for actual production. Over the five-year period, the actual production is 1 150 tonnes and using a carbon intensity of 1.44 tCO_2e/tonne product, the carbon budget allocated to the Data Provider is adjusted to account for actual production and the carbon budget over the five year period is 1 656 tCO_2e.
- At the end of the commitment period, the carbon budget allocated to the Data Provider is summarised and assessed. The total GHG emissions over the five-year period is reported and using this information it is determined whether the Data Provider remains in or exceeded its carbon budget. If actual emissions over five years total 1 670 tCO_2e, this is assessed against the revised budget of 1 656 tCO_2e (not the initial 1 440 tCO_2e). In this case, the Data Provider exceeds the budget by 14 tCO_2e.

Adjusting carbon budget intensities due to actual production

1. Competent Authority assigns the carbon budget based on production forecasts

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Forecast Production (tonnes)	100	150	200	250	300	1 000
Forecast Carbon Budget (tCO_2e)	144	216	288	360	432	1 440

Total Production forecast = 1000 tonnes
Average carbon intensity = 1.44 tCO_2e/t
Total carbon budget = 1440 tCO_2e

2. Competent Authority receives actual production and the carbon budget allocated is adjusted accordingly on an annual basis

	Actual Production (tonnes)	Projected Emissions (tCO_2e)					Adjusted Total Carbon Budget (tCO_2e)
		Year 1	Year 2	Year 3	Year 4	Year 5	
Year 1	150	216*	216	288	360	432	1 512
Year 2	250	216	360	288	360	432	1 656
Year 3	200	216	360	288	360	432	1 656
Year 4	250	216	360	288	360	432	1 656
Year 5	300	216	360	288	360	432	1 656

* Emissions updated based on actual production

Total Production actual = 1150 tonnes
Average carbon intensity = 1.44 tCO_2e/t
Total carbon budget allocated = 1656 tCO_2e

3. Competent Authority assesses the performance of the Data Provider's actual emissions against the budgeted emissions

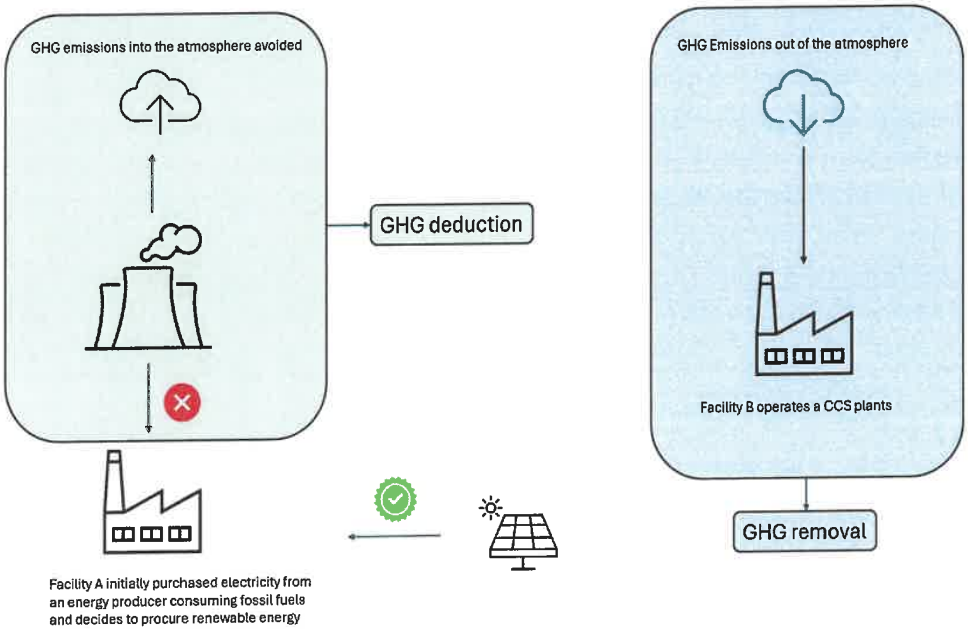
	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Actual Production (tonnes)	150	250	200	250	300	1 150
Actual CO_2e (tonnes)	230	370	290	340	440	1 670

Assessment outcome is that 14 tCO_2e is produced over the carbon budget allocated

Greenhouse Gas Emissions Deductions and removals

A reduction in reported GHG emissions is achieved through actions that prevent GHG emissions from occurring in the first place. A GHG reduction focuses on avoiding or minimising emissions at the source. Examples include transitioning from a fossil fuel source to renewable energy, improved process energy efficiency

A GHG removal is the physical removal of a GHG especially carbon dioxide (CO_2) from the atmosphere. GHG removal involves the capture of GHGs from the atmosphere and storing in a stable form. Examples of GHG removals include natural processes like afforestation, reforestation or soil carbon sequestration or technological solutions like direct air capture (DAC) or carbon capture and storage (CCS).



3. LISTED ACTIVITIES

There are certain activities listed in the methodological guidelines for quantification of greenhouse gases according to the DFFE. This list of activities includes those that will be allocated mandatory carbon budgets for the first commitment period. The list is subject to change over time or as progress is made through the commitment periods.

The following list of activities and their IPCC codes can be found in the DFFE's methodological guidelines:

Listed Activity:	IPPC code/s:	Definition:
Coal Mining	1A1ci	Emissions arising from fuel combustion for the production of coke, brown coal briquettes and patent fuel.
	1A1cii	Combustion emissions arising from the energy-producing industries own (on-site) energy use not mentioned above or for which separate data are not available. This includes the emissions from own-energy use for the production of charcoal, bagasse, saw dust, cotton stalks and carbonizing of biofuels as well as fuel used for coal mining, oil and gas extraction and the processing and upgrading of natural gas.
	1B1ai	Underground Coal Mining
	1B1ai	Underground Post-Mining (Handling & Transport)
	1B1aii	Surface Coal Mining
	1B1aii	Surface Post-Mining (Storage and Transport)
Oil & Gas (Including Petroleum Refining)	1A1b	All combustion activities supporting the refining of petroleum products including on-site combustion for the generation of electricity and heat for own use. Does not include evaporative emissions occurring at the refinery. These emissions should be reported separately under 1B2a.
	1A1ci	Emissions arising from fuel combustion for the production of coke, brown coal briquettes and patent fuel.
	1B2b	Emissions from exploration, production, processing, transmission, storage, distribution, flaring/venting, leakage at gas facilities.
	1A2ai	Oil Exploration: Fugitive emissions associated with field activities prior to production – e.g. exploratory drilling, field development and well development etc.
	1B2aii	Oil Production and Upgrading (Onshore Production, Offshore Production and Crude Bitumen or Heavy Oil Upgrading to Synthetic Crude Oil from Oil Sands/ Oil Shale)
	1B2aiii	Oil Transport (Marine, Pipeline, Tanker Trucks and Rail Cars).
	1B2aiv	Oil Refining (Heavy Oil and Conventional and Synthetic Crude Oil).
	1B2av	Distribution of Oil Products: (Gasoline, Diesel, Aviation Fuel and Jet Kerosene, Gas oil (intermediate Refined Products).

Listed Activity:	IPPC code/s:	Definition:
	1B2avi	Other: Anomalous leak events can occur across segments of the Oil systems.
	1B2avii	Abandoned Oil Wells: Unplugged and plugged abandoned wells.
Gas	1B2bi	Gas Exploration: Fugitive emissions associated with field activities prior to production – e.g. exploratory drilling, field development and well development etc.
	1B2bii	Gas Production and Gathering (Onshore gas production, Offshore gas production and gathering and boosting stations (with multiple emissions sources on site, such as compressors, pneumatic controllers and tanks) and gathering pipelines).
	1B2biii	Gas Processing (Gas Processing Plants without Acid Gas Removal and Sour Gas or Acid Gas Removal Plants)
	1B2biv	Gas Transmission and Storage (Transmission pipeline Systems compressor stations, Storage Facilities and Liquefied Natural Gas System import stations, export stations, storage stations and transport)
	1B2bv	Gas Distribution Pipelines, metering and regulating stations
	1B2bvi	Gas Post -Meter Consumer appliances, power plants and natural gas fuelled vehicles
	1B2bvii	Other Anomalous leak events (e.g. emergency pressure releases and unintentional gas spills)
	1B2bviii	Abandoned Gas Wells: Unplugged and Plugged abandoned wells
	2B8g	Hydrogen Production
Production of synthetic fuels from coal or gas	1A1a	Sum of emissions from main activity producers of electricity generation, combined heat and power generation, and heat plants should be assigned to the sector where they were generated and not dealt with under 1A1a.
	1A1c	Combustion emissions from fuel use during the manufacture of secondary and tertiary products from solid fuels including production of synthetic fuels and chemicals. Emissions from own on-site fuel use should be included. Also include combustion for the generation of electricity and heat for own use in these industries.
	1B1	Fugitive emissions from opencast and underground coal mining. Emissions include emissions from post-mining handling of coal.
	1B2b	Emissions from exploration, production, processing, transmission, storage, distribution, flaring/venting and leakage at gas facilities.
	1B3	Fugitive emissions from synfuels and gas-to-liquids/chemicals processes.
Cement Production	1A2f	Fuel combustion activities in the non-metallic minerals sector.
	2A1	Cement production process emissions.
Glass Production	1A2f	Fuel combustion activities in the non-metallic minerals sector.
	2A3	Glass production process emissions.
	1A2c	Fuel combustion activities in the chemicals sector.

Listed Activity:	IPPC code/s:	Definition:
Ammonia Production	2B1	Ammonia (NH3) is a major industrial chemical, and the most important nitrogenous material produced. Ammonia gas is used directly as a fertilizer, in heat treating, paper pulping, nitric acid and nitrates manufacture, nitric acid ester and nitro compound manufacture, explosives of various types, and as a refrigerant. Amines, amides, and miscellaneous other organic compounds, such as urea, are made from ammonia. The main greenhouse gas emitted from NH3 production is CO2. CO2 used in the production of urea, a downstream process, should be subtracted from the CO2 generated and accounted for in the AFOLU Sector.
Nitric acid production	2B2	Nitric acid is used as a raw material mainly in the manufacture of nitrogenous-based fertiliser. Nitric acid may also be used in the production of adipic acid and explosives (e.g., dynamite), for metal etching and in the processing of ferrous metals. The main greenhouse gas emitted from HNO3 production is nitrous oxide.
Petro-chemical and Carbon Black Production	1A2c	Fuel combustion activities in the chemicals sector.
	2B8a	Methanol production covers production of methanol from fossil fuel feedstocks [natural gas, petroleum, coal] using steam reforming or partial oxidation processes. Production of methanol from biogenic feedstocks (e.g., by fermentation) is not included in this source category.
	2B8b	Ethylene production covers production of ethylene from fossil fuel-derived feedstocks at petrochemical plants by the steam cracking process. Production of ethylene from processes situation within the boundaries of petroleum refineries is not included in this source category. The greenhouse gases produced from ethylene production are carbon dioxide and methane.
	2B8c	Ethylene dichloride and vinyl chloride monomer production covers production of ethylene dichloride by direct oxidation or oxychloination of ethylene, and the production of vinyl chloride monomer from ethylene dichloride. The greenhouse gases produced from production of ethylene dichloride production and vinyl chloride monomer production are carbon dioxide and methane.
	2B8d	Ethylene oxide production covers production of ethylene oxide by reaction of ethylene and oxygen by catalytic oxidation. The greenhouse gases produced from ethylene oxide production are carbon dioxide and methane.
	2B8e	Acrylonitrile production covers production of acrylonitrile from ammoxidation of propylene, and associated production of acetonitrile and hydrogen cyanide from the ammoxidation process. The greenhouse gases produced from production of acrylonitrile are carbon dioxide and methane.
	2B8f	Carbon black production covers production of carbon black from fossil fuel-derived feedstocks (petroleum or coal-derived carbon black feedstock, natural gas, acetylene). Production of

Listed Activity:	IPPC code/s:	Definition:
		carbon black from biogenic feedstocks is not included in this source category.
	2B8g	Hydrogen production covers production of hydrogen from steam reforming, gasification, methanol production, ammonia production and processing of crude petroleum. Production of carbon black from biogenic feedstocks is not included in this source category.
Iron & Steel Production	1A2a	Fuel combustion activities in the iron and steel sector.
	1A1ci	Emissions arising from fuel combustion for the production of coke, brown coal briquettes and patent fuel.
	2C1	Carbon dioxide is the predominant gas emitted from the production of iron and steel. The sources of the carbon dioxide emissions include that from carbon-containing reducing agents such as coke and pulverized coal, and, from minerals such as limestone and dolomite added.
	1B1c	Fugitive emissions from coke production.
Ferro-alloys production	1A2a	Fuel combustion activities from a non-specified industry.
	1A1ci	Emissions arising from fuel combustion for the production of coke, brown coal briquettes and patent fuel as well as recovery of CO syngas.
	1B1c	Fugitive emissions arising during the manufacture of secondary and tertiary products from solid fuels (charcoal, coke and biochar production and coal to liquids as examples of fuels)
	2C2	Ferroalloys production covers emissions from primary metallurgical reduction production of the most common ferroalloys, i.e. ferro-silicon, silicon metal, ferro-manganese, silicon manganese, and ferro-chromium, excluding those emissions relating to fuel use. From the production of these alloys, carbon dioxide (CO2), nitrous oxide (N2O), and methane (CH4) originating from ore-and reductant raw materials, is emitted.
Aluminium production, excluding foundries	1A2b	Fuel combustion activities from non-ferrous metals.
	2C3	Aluminium Production covers primary production of aluminium, except the emissions related to the use of fuel. Carbon dioxide emissions result from the electrochemical reduction reaction of alumina with a carbon-based anode. Tetrafluoromethane (CF4) and hexafluoroethane (C2F6) are also produced intermittently. No greenhouse gases are produced in recycling of aluminium other than from the fuels uses for metal remelting. Sulphur hexafluoride (SF6) emissions are not associated with primary aluminium production; however, casting of some high magnesium containing alloys does result in SF6 emissions and these emissions are accounted for in Section 2C4, Magnesium Production.
Pulp and Paper Production	2B7	Soda ash (sodium carbonate, Na2CO3) is a white crystalline solid that is used as a raw material in a large number of industries including glass manufacture, soap and detergents, pulp and paper production and water treatment. Emissions of CO2 from the production of soda ash vary dependent on the

Listed Activity:	IPPC code/s:	Definition:
		manufacturing process. Four different processes may be used to produce soda ash. Three of these processes, monohydrate, sodium sesquicarbonate (trona) and direct carbonation, are referred to as natural processes. The fourth, the Solvay process, is classified as a synthetic process.
	4D2	Treatment and discharge of liquid wastes and sludge from industrial processes such as: food processing, textiles, or pulp and paper production. This includes anaerobic lagoons, anaerobic reactors, and discharge into surface waters. Industrial wastewater released into domestic wastewater sewage should be included under 4D1.
Electricity production from fossil fuels excluding the use of back-up generators (Public electricity generation in DFFE meth. guidelines)	1A1ai	Comprises emissions from all fuel use for electricity generation from main activity producers except those from combined heat and power plants.
	2G1	Electrical equipment is used in the transmission and distribution of electricity above 1 kV. SF6 is used in gas-insulated switchgear (GIS), gas circuit breakers (GCB), gas-insulated transformers (GIT), gas-insulated lines (GIL), outdoor gas-insulated instrument transformers, reclosers, switches, ring main units and other equipment
Chemical Production	1A2c	Emissions from combustion of fuels in the chemical production industry. Also includes combustion for the generation of electricity and heat for own use in this industry.
	2B1	Ammonia (NH3) is a major industrial chemical, and the most important nitrogenous material produced. Ammonia gas is used directly as a fertilizer, in heat treating, paper pulping, nitric acid and nitrates manufacture, nitric acid ester and nitro compound manufacture, explosives of various types, and as a refrigerant. Amines, amides, and miscellaneous other organic compounds, such as urea, are made from ammonia. The main greenhouse gas emitted from NH3 production is CO2. CO2 used in the production of urea, a downstream process, should be subtracted from the CO2 generated and accounted for in the AFOLU Sector.
	2B2	Nitric acid is used as a raw material mainly in the manufacture of nitrogenous-based fertiliser. Nitric acid may also be used in the production of adipic acid and explosives (e.g., dynamite), for metal etching and in the processing of ferrous metals. The main greenhouse gas emitted from HNO3 production is nitrous oxide.
	2B3	Adipic acid is used in the manufacture of a large number of products including synthetic fibres, coatings, plastics, urethane foams, elastomers and synthetic lubricants. The production of Nylon 6.6 accounts for the bulk of adipic acid use. The main greenhouse gas emitted from adipic acid production is nitrous oxide.
	2B4	Most of the annual production of caprolactam (NH(CH2)5CO) is consumed as the monomer for nylon- 6 fibres and plastics, with

Listed Activity:	IPPC code/s:	Definition:
		a substantial proportion of the fibre used in carpet manufacturing. All commercial processes for the manufacture of caprolactam are based on either toluene or benzene. This subcategory also covers production of glyoxal (ethanedial) and glyoxylic acid production. The main greenhouse gas emitted from this subcategory is nitrous oxide.
	2B5	The production of carbide can result in emissions of CO2, CH4, CO and SO2. Silicon carbide is a significant artificial abrasive. It is produced from silica sand or quartz and petroleum coke. Calcium carbide is used in the production of acetylene, in the manufacture of cyanamide (a minor historical use), and as a reductant in electric arc steel furnaces. It is made from calcium carbonate (limestone) and carbon-containing reductant (petroleum coke).
	2B6	Titanium dioxide (TiO2) is the most important white pigment. The main use is in paint manufacture followed by paper, plastics, rubber, ceramics, fabrics, floor covering, printing ink, and other miscellaneous uses. The main production process is the chloride route, giving rise to CO2 emissions that are likely to be significant. This category also includes synthetic rutile production using the Becher process, and titanium slag production, both of which are reduction processes using fossil fuels and resulting in CO2 emissions. Synthetic rutile is the major input to TiO2 production using the chloride route.
	2B7	Soda ash (sodium carbonate, Na2CO3) is a white crystalline solid that is used as a raw material in a large number of industries including glass manufacture, soap and detergents, pulp and paper production and water treatment. Emissions of CO2 from the production of soda ash vary dependent on the manufacturing process. Four different processes may be used to produce soda ash. Three of these processes, monohydrate, sodium sesquicarbonate (trona) and direct carbonation, are referred to as natural processes. The fourth, the Solvay process, is classified as a synthetic process.
Hydrogen Production	2B8g	Hydrogen production covers production of hydrogen from steam reforming, gasification, methanol production, ammonia production and processing of crude petroleum. Production of carbon black from biogenic feedstocks is not included in this source category.
Sugar Production	1A2e	Food processing, beverages and tobacco
	2H2	Food and beverage industry
Lead Production	1A2b	Fuel combustion activities from non-ferrous metals.
	2C5	Lead production covers production by the sintering/smelting process as well as direct smelting. Carbon dioxide emissions result as a product of the use of a variety of carbon-based reducing agents in both production processes.
Ceramics production (other	2A4a	Process-related emissions from the production of bricks and roof tiles, vitrified clay pipes, refractory products, expanded clay products, wall and floor tiles, table and ornamental ware

Listed Activity:	IPPC code/s:	Definition:
process use of carbonates)		(household ceramics), sanitary ware, technical ceramics, and inorganic bonded abrasives.
Brick Production	1A2m	Any manufacturing industry/construction not included above or for which separate data are not available.
	2A4a	Should a brick manufacturing plant meet the threshold of IPCC activity 2A4a but uses raw materials (e.g., clay) that do not contain carbonates, the data provider is required to register on SAGERS regardless and provided us with under Attachments on the SAGERS report a monthly or annual summary of lab analysis undertaken on the raw material (e.g. clay) being used.
Domestic Aviation (Aviation Industry)	1A3aii	Emissions from civil domestic passenger and freight traffic that departs and arrives in the same country (commercial, private, agriculture, etc.), including take-offs and landings for these flight stages.
Food and Beverage Productions (excluding sugar production)	2H2	Food and Beverage Industry
Mining (Mining and Quarrying)	1A2i	Emissions from the mining operation and processing plants.
Polymers	1A2c	Emissions from combustion of fuels in the chemical production industry. Also includes combustion for the generation of electricity and heat for own use in this industry.

4. DATA COLLECTION

Data providers engaged in the activities listed in Annexure 2 must meet or exceed an annual emissions threshold of 30,000 CO2-equivalent (CO2-eq). This threshold is calculated as an average of the emissions over at least three consecutive years within the five-year reporting period that precedes the carbon budget allocation.

To determine whether they meet the threshold, data providers must calculate their annual emissions for the relevant period and average those emissions over the three consecutive years. If the average meets or exceeds the 30,000 CO2-eq threshold, they are required to adhere to the carbon budget reporting and compliance obligations outlined in the regulations.

$$\frac{Total\ GHG\ Emissions_{year\ 1} + Total\ GHG\ Emissions_{year\ 2} + Total\ GHG\ Emissions_{year\ 3}}{3} \geq 30\ 000\ tCO_2e$$

Data providers must submit IPCC emission sources and related greenhouse gas emissions and activity data as outlined in Annexure 5 of the regulations. This submission should be made one year before the start of the first commitment period and two years before the start of each successive commitment period. The data requirement is that Data Providers provide their historic GHG emissions data and forecasted production and associated future GHG emissions.

Data Collection and Record Keeping

Data providers play a critical role in ensuring the transparency and accuracy of greenhouse gas (GHG) emissions reporting within the Carbon Budget/Monitoring Program (CB/MP). To meet these requirements, data providers must archive all data, calculations, algorithms, procedures, and technical references used to estimate and calculate GHG emissions. This not only applies to current emissions but also to any historical data submitted through systems such as SAGERS or via manual reporting methods like Annexure 3. The procedures for calculations must align with the National Greenhouse and Energy Reporting (NGER) system and the methodological guidelines for reporting GHG emissions.

A key aspect of this data management process is ensuring that records are maintained for at least five years, as stipulated by the regulations. These records must be readily accessible to the competent authority upon request, particularly during inspections or verification processes. Comprehensive record-keeping is necessary for the effective verification of carbon budget data submitted under the CB/MP, facilitating transparency and accountability.

Monitoring Plans

The use of monitoring plans by data providers is essential to enhance the quality of GHG emissions data, mitigation plans, and actions. These monitoring plans document all methodologies employed by data providers in the collection, monitoring, and reporting of emissions and mitigation activities. This not only strengthens the data integrity but also supports the verification process by ensuring that all steps in the data collection and reporting process are traceable and replicable.

In addition to the monitoring plans, data providers should ensure that their carbon budget allocations align with the tiered methodological approaches specified for different industries or sectors. This alignment helps standardize the reporting process and ensures that the data used to meet carbon budget targets is reliable and comparable across reporting periods.

Verification and Data Review

Verification of GHG data is a key aspect of carbon budget regulation. The competent authority has the discretion to select data providers for independent third-party verification, as outlined in the Validation & Verification (V&V) guidelines. The data provider's responsibility extends beyond simple reporting—it involves ongoing observation and monitoring of processes to comply with both NGER and CB/MP regulations.

The same GHG emissions data reported on the SAGERS portal or through manual methods must be submitted prior to the start of a commitment period. Data providers must ensure that any gaps in reporting are filled, particularly in sectors where the fixed target approach or mitigation potential analysis (MPA) is used.

Data Systems and Tools

Data providers may use a variety of systems to track and store emissions data. These include enterprise resource planning systems with sustainability modules, dedicated environmental management software, GHG emissions calculation tools, custom-built solutions, and cloud-based platforms. The use of Internet of Things (IoT) and sensor-based systems can also improve the accuracy of real-time data collection.

Regardless of the system used, data must be kept at the facility level and be traceable on a monthly basis to ensure transparency and ease of verification. This facilitates the accurate reporting of GHG emissions on an annual basis.

Tiered Methodological Approach and Missing Data

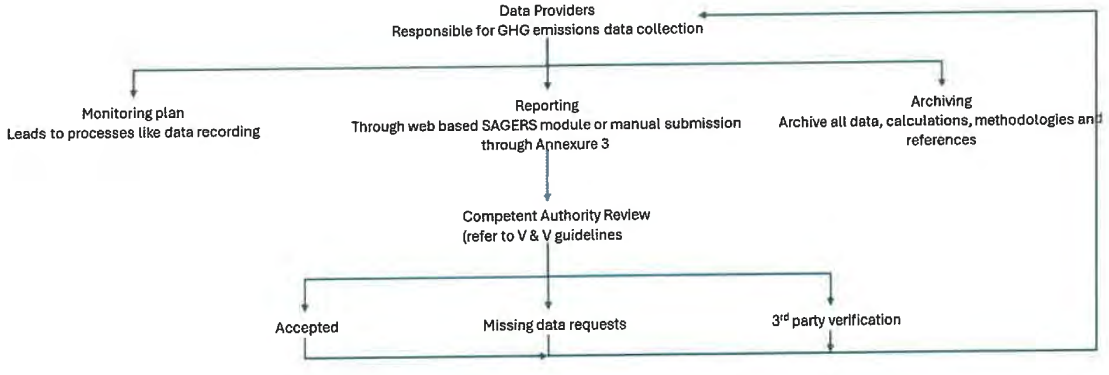
When using the fixed target approach, data providers must document how GHG emissions were calculated, including the reporting tiers and assumptions used. Similarly, in cases where a mitigation potential analysis informs the carbon budget, all procedures, tools, and stakeholder engagement involved in the modeling process must be thoroughly documented. For product-based benchmarking, baseline information, production history, GHG emissions calculations, and all supporting data should be maintained. As product benchmarks involve forecasting, all assumptions made in the process must be clearly referenced and documented.

Data providers must ensure that all historic data previously submitted to SAGERS or other reporting programs is accurate and complete. Where data gaps exist, they must be filled to avoid discrepancies, particularly in sectors whose carbon budgets are influenced by fixed targets or mitigation potential analysis.

SUBMISSION OF INFORMATION FOR CARBON BUDGETS ALLOCATION									
Company Name									
Facility Name AND ID									
Production / Output Data				Year 1	Year 2	Year 3	Year 4	Year 5	
			Product a						
			Product b						
Projected Activity Data	Emissions Source	IPCC Category		2026	2027	2028	2029	2030	Unit
	Stationary Fuel Combustion	1A-							
									MJ
	Fugitive Emissions	1B							
									t CH4
	Process Emissions	2-							t CO2
			Notes						
	Other Emissions								
Greenhouse Gas Emissions Calculations				Year 1	Year 2	Year 3	Year 4	Year 5	
	Stationary Fuel Combustion								
		GHG1	CO2 (t)						
		GHG2	CH4 (t)						
		GHG3	N2O (t)						
			t CO2e						
	Fugitive Emissions								

		GHG1	CH4 (t)						
	Process Emissions								
		GHG1	CO2 (t)						
	Other Emissions								
		GHG 1							
		GHG2	CO2 (t)						
		GHG3	CH4 (t)						
			N2O (t)						
		Total							
			GHG1 (tCO2)						
			GHG2 (tCH4)						
			GHG2 (CO2eq)						
			GHG3 (tN20)						
			GHG3 (CO2eq)						
			Total CO2eq						

Describe the approach (method, nature of activity data, emission factors, assumptions) to estimate projected activity data and greenhouse gas emissions: Additional data and information requirements shall be provided in the technical guidelines for Carbon Budgets and Mitigation Plans.



5. CARBON BUDGET METHOD APPLICATION

The carbon budgeting system will be implemented in three phases: Phase I (2016-2020), the Transition Phase (2021-2025), and Phase II (2026-2030).

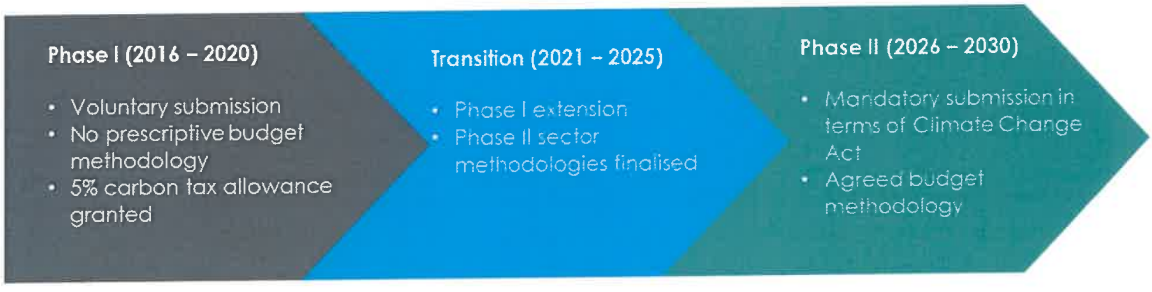


Figure 2: Carbon Budget Allocation: A Phased Approach

In Phase I, participation was voluntary, allowing companies to report GHG data and request budgets. The ongoing Transition Phase builds on this, focusing on refining the carbon budgeting system through extensive stakeholder consultations aimed at preparing companies for future compliance.

Mandatory carbon budgets will take effect in Phase II, starting January 2026, requiring companies with GHG emissions above a specified threshold to request budgets for the five-year period until 2030 and submit approved GHG mitigation plans.

The DFFE has established a tiered approach for budget allocation in Phase II, comprising three methods: benchmarking, mitigation potential analysis, and fixed target allocation based on historical emissions, with benchmarking being the preferred method. This system is designed to allow flexibility to accommodate the complexities of different sectors and production processes.

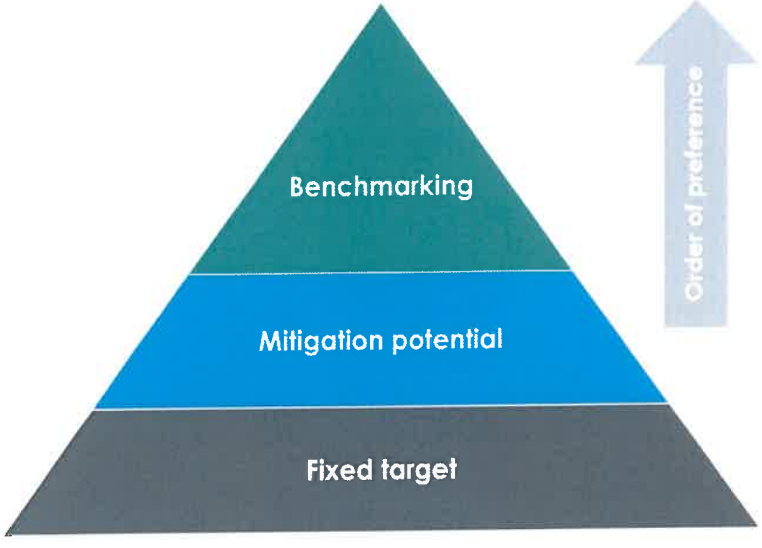


Figure 3: Tiered Methodological Approach to Carbon Budget Allocation.

Fixed targets

Carbon budgets are set by allocating a share of GHG emissions space to industry and mining from the GHG emissions target. That space is then divided up between individual industry and mining companies.

This method does not consider emissions reduction potentials or the context of each sector or company and can thus be considered 'top-down'.

The basis of this approach is the definition of the share of national emissions allocated to industry and mining. This can be readily estimated using the MPA. The MPA contains input data from 2000 to 2015 and projection of emissions to 2050. The share of emissions is estimated by dividing the modelled industry and mining GHG emissions by the economy-wide emissions number (industry and mining GHG emissions are the sum of the fuel combustion and process emissions of all relevant sectors).

It is important to note that the industry and mining share of emissions may vary year on year depending on the contribution in relation to the remainder of the economy, which includes transport, buildings, waste, AFOLU and other non-industry and mining energy use emissions. A number of approaches are available to estimate share using MPA output, including:

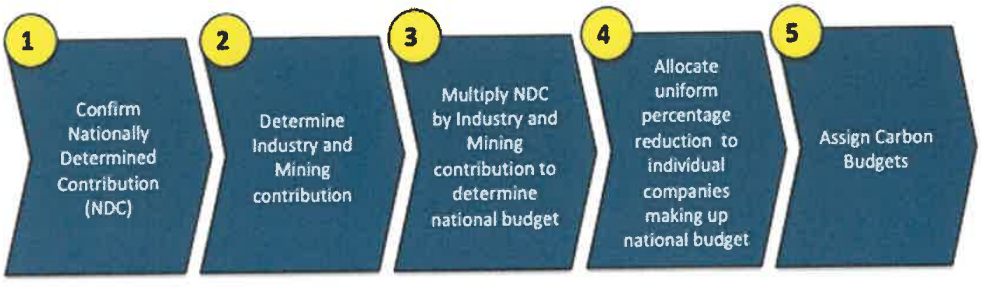
- Historical share (2015- 2019, 2020 Is not a representative year)
- Current share to end-2019 (assuming no emissions reductions since 2015)
- Share at the beginning of the first mandatory carbon budget cycle (assuming no emissions reduction since 2015)

An average of these approaches is deemed to be the most equitable.

In order to determine the total industry and mining budget the percentage contribution to total is multiplied by the national GHG emissions target, or NDC.

To allocate this share of emissions further, the emissions allocated to the industry and mining sector can be distributed across all companies. It is worth noting that although a uniform distribution of emissions (i.e, a fixed percentage) may be desirable from an administration perspective, a fixed percentage may be disadvantageous for large companies within a sector (2% reduction for a large producer and emitter can have vastly different implications compared to a small operator). The sum of all the company carbon budgets would equal the total emissions space allocated to the industry and mining sectors, which in turn is calibrated to the NDC.

A process flow summarising the descriptive above is provided in *Process flow – Fixed Targets Allocation Approach*



Worked example – Bottom Tier: Fixed Targets approach

It was determined that the national GHG emissions space for industry and mining is 70% of a national total of 500 MT CO2e, equating to 375 MT CO2e (Note: Values are for illustration purposes only). Following a period of engagement, South Africa sets an emissions reduction target of 1.5% for the first 5 year period based on an adjusted assessment of mitigation potential. This equates to 5.63 MT CO2e. 100% of industry and mining emissions are shared proportionally between 8 companies. A uniform fixed reduction target (budget) would be calculated as follows:

Company	Proportion of National Emissions Total	Total Emissions (MT)	1.5% Target	Carbon budget (MT)
Company A	60%	225.00	3.38	221.63
Company B	20%	75.00	1.13	73.88
Company C	8%	30.00	0.45	29.55
Company D	5%	18.75	0.28	18.47
Company E	2%	7.50	0.11	7.39
Company F	2%	7.50	0.11	7.39
Company G	2%	7.50	0.11	7.39
Company H	1%	3.75	0.06	3.69
	100%	375	5.625	369.375

Mitigation Potential

In this approach, modelled mitigation potential obtained from the Mitigation Potential Analysis (MPA) model is used as guidance for the allocation of carbon budgets.

The mitigation model includes a stakeholder-based assessment of what emissions reductions are possible per economic sector. Only the industry and mining sectors are considered. The latest inputs from stakeholders was in 2018 and 2019 when the Mitigation Potential Analysis (MPA) was last updated by DFFE.

The mitigation potential analysis outputs allow for a thorough assessment of industry and mining sectors. They allow us to understand the quantitative limits to emissions reductions in the 2023 to 2027 time period as well as the context around the quantitative assessment of emissions reduction potential.

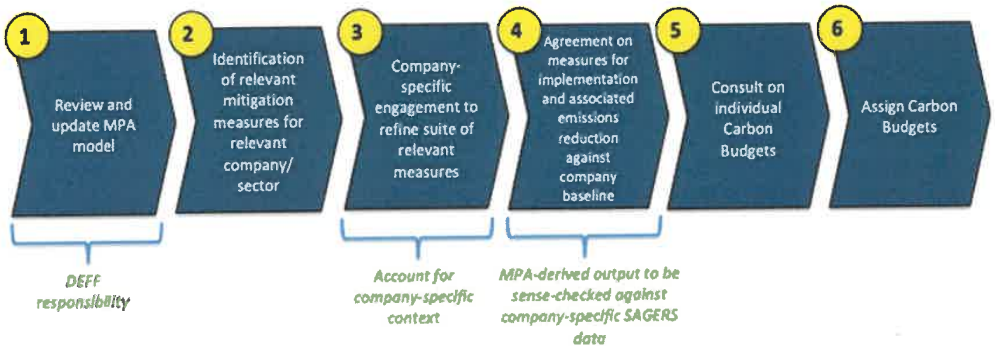
The MPA can be used as a guide to identify the emissions reductions that will be assigned to companies. It is however, not company specific. Thus, the applicability of each mitigation measure identified in the model will be assessed individually as companies within each sector may use different technologies, material inputs and may already have implemented identified mitigation measures. In the latter case, alternate measures may require evaluation.

Each company will receive an emissions reduction assignment that is specific to their own context. If, for example, 2 out of the 3 interventions identified in the MPA for that specific sector are relevant to the company then the emissions reductions assigned to the company are based on the potential emissions reductions of these 2 interventions.

Although the MPA does look at specific interventions and technologies this method does not specifically link an emissions reduction assignment to an intervention or technology. No interventions are prescribed to companies. The MPA only is used as a basis to assign an emissions reduction, but the company can elect to use whatever mitigation intervention it chooses to achieve the assigned reduction. The stringency process is used to assess the extent to which the identified mitigation interventions are helping with the overall carbon budget allocation objective. A process of engagement will be initiated to ensure that company budgets align with the quantum of mitigation measures identified.

A process flow summarising the descriptive above is provided below.

Figure 4: Process flow – Mitigation Potential Approach



A worked example is provided - *Worked example – Middle Tier: Mitigation Potential approach*

For the **Cement Sector**, the mitigation analysis has identified 5 measures to reduce direct emissions in the sector. This sector is comprised of 2 companies, **Company A** and **Company B**. The emissions of this sector is **1 925 000 t CO2e**.

- **Waste Heat Recovery:** results in an emissions reduction of 1% over the 2023 to 2027 time period
- **Improved Process Control**: results in an emissions reduction of 0.15% over the 2023 to 2027 time period
- **Fuel Switch (coal to waste):** results in an emissions reduction of 2% over the 2023 to 2027 time period
- **Reduction of Clinker content**: results in an emissions reduction of 0.3% over the 2023 to 2027 time period

Company A: Baseline emissions for 2023 to 2027 are projected to be: 675 000 t CO2e. This company can implement:

- Improved Process Control (0.15% emissions reduction)
- Fuel Switch- coal to waste (2% emissions reduction)

Company A will be assigned an emission reduction of **2.15%, or 14 513 t CO2e** against baseline emissions. Their carbon budget will be: **660 488 t CO2e** for 2023 to 2027.

Company B: Baseline emissions for 2023 to 2027 are projected to be: 1 250 000 t CO2e. This company can implement:

- Waste Heat Recovery (1% emissions reductions)
- Improved Process Control: (0.15% emissions reductions)
- Fuel Switch (coal to waste): (2% emissions reductions)
- Reduction of Clinker content: (0.3% emissions reductions)
- They will be assigned an emissions reduction of **1.45%, or 18 125 t CO2e** from their baseline emissions. Their carbon budget will be: **1 231 875 t CO2e**

Product Benchmark

In the benchmarking approach, company carbon budgets are based on emissions per unit of product. Different industrial and mining companies have varying emissions intensities due to factors like fuel types, efficiency, processes, and waste management. These intensities are assessed to set a sector benchmark. Comparable companies, defined by the same IPCC category and product type, can have a common benchmark.

Emissions intensities are expressed as:

$$CO2e/_{Amount\ of\ production}$$

Carbon budgets are then calculated using projected production values:

$$Carbon\ Budget = Forecasted\ Production * Benchmark\ Intensity$$

For companies with multiple products or activities, separate benchmarks are required for each IPCC subcategory. If linking emissions to a product is complex, fallback approaches can assess emissions per unit of heat, fuel, or reductant used. Benchmarks can be set using different levels of stringency, such as the best performing, adjusted best, or an average of emissions intensities.

This system is designed to allow flexibility to accommodate the complexities of different sectors and production processes.

5 companies make up a sector: **A, B, C, D, E.** Each company has a single facility, producing the same product. Emissions and production data available for 2 years – 2018 and 2019. Thus **10 facility-year data points** are available.

- Calculate emissions per product intensity data for each facility
- Rank each facility by production
- Utilise production weighted median to determine benchmark average emissions intensity
- Calculate average emissions intensity of facilities around the median. Use ~50% of values around the median (and >2 facilities)

Rank	Company	tCO2e/t product	Production tonnes	Total Production %
1	A	0.63	214 315	3.4%
2	D	0.78	504 914	8.0%
3	A	0.75	546 778	8.7%
4	D	0.73	555 669	8.8%
5	E	0.79	582 407	9.2%
6	B	0.68	658 444	10.4%
7	C	0.76	764 154	12.1%
8	E	0.68	766 114	12.1%
9	B	0.64	794 611	12.6%
10	C	0.8	919 315	14.6%

	Value	Unit
p (percentile)	50%	
n (sample size)	10	
Rank = p(n+1)	5.5	
Interpolated 50th percentile	620 426	tonnes
Average Emissions Intensity	0.74	tCO2e/t product

Figure 5: Worked example – Highest Tier: Benchmarking approach.

6. MITIGATION PLAN INTERVENTIONS

Intervention plans are strategic actions implemented by industries to reduce their GHG emissions and mitigate their environmental impact. These plans focus on transitioning operations from carbon-intensive processes to more sustainable alternatives, with the goal of achieving measurable reductions in emissions. Each intervention targets a specific aspect of production or energy use, such as switching fuels, improving energy efficiency, or integrating renewable energy. These measures involve setting a baseline for emissions and regularly assessing progress to ensure alignment with mitigation goals and climate commitments.

Outlined below are examples of potential mitigation interventions that industries can implement to reduce their GHG emissions:

Fuel Switching Mitigation Plan:

Transition from high-carbon fuels (e.g., coal) to lower-carbon or renewable alternatives. Emissions reduction is calculated by comparing the baseline (pre-switch fuel) emissions with those of the new fuel, based on CO2 emission factors (e.g., kg CO2/kWh).

Energy Efficiency Improvement Plan:

Upgrade equipment with more efficient alternatives, such as high-efficiency motors. The baseline is the energy consumption before upgrades, and the mitigation impact is calculated by the energy saved and its associated emissions using the Grid Emission Factor (GEF).

Carbon Capture and Storage (CCS) Plan:

Install CCS systems to capture CO2 before it is emitted. Mitigation is measured by the amount of CO2 captured. The baseline is the original emissions without CCS, and the impact is calculated by the tonnes of CO2 sequestered.

Electrification of Operations Plan:

Switch from fossil fuel-powered systems to electric alternatives. Baseline emissions are calculated based on current fossil fuel use, and mitigation is measured by the reduction in emissions through electrification, adjusting for the renewable content of the electricity grid.

Process Optimisation Plan:

Optimise processes to reduce waste and emissions. The baseline is the current emissions intensity per unit of production, and mitigation is the decrease in emissions resulting from the optimisation.

Renewable Energy Integration Plan:

Integrate renewable energy into operations, either through on-site generation or Power Purchase Agreement (PPA). The baseline is current grid energy use, and the mitigation is measured by the reduction in grid electricity usage replaced by renewables.

Waste-to-Energy Plan:

Convert waste into usable energy to offset fossil fuel use. The baseline is the emissions from waste disposal without energy recovery, and mitigation is calculated by the emissions avoided through energy recovery.

Supply Chain Emissions Reduction Plan:

Work with suppliers to reduce emissions. Baseline emissions are those from the existing supply chain processes, and mitigation is measured by the emissions reductions achieved through greener practices, optimised logistics, or low-emission transport options.

Grid Emission Factor (GEF):

The Grid Emission Factor measures the average emissions produced per unit of electricity (kg CO2/kWh), which is critical for determining the emissions impact of energy efficiency, electrification, and renewable energy measures. A lower GEF (due to a higher proportion of renewable energy in the grid) results in fewer emissions per kWh of electricity used.

Example:

For Fuel Switching, the baseline is the emissions from coal (e.g., 2.4 kg CO2/kg). After switching to natural gas (e.g., 1.8 kg CO2/kg), the mitigation impact is calculated by comparing the CO2 emissions before and after the switch, using the relevant emission factors. The reduction in total CO2 emissions is the measure of success for this intervention.

7. NEW ENTRANTS

New entrants are entities that become eligible as a data provider after commencement of the Carbon Budget and Mitigation Plans regulations, starting an activity that becomes liable to a carbon budget allocation. The Competent Authority is responsible for establishing a New Entrants Reserve (NER), an allowable carbon space from which new entrants can apply to for a carbon budget allocation.

The NER exists in the context of the country's Nationally Determined Contribution, and cannot be calculated such that it is in contradiction with the allowable budget for the country. As such, the Competent Authority must develop an economy-wide emission cap At an indicative level, the reserve will be the residual amount of carbon space calculated using the following formula:

Total Allowable Emissions Budget for SA = Emissions CB/MP + Emissions Outside CB/MP

Emissions CBMP = CB Industries Aggregate + NER

NER = 5% x CB Industries Aggregate

Where:

Total Allowable Emissions Budget for SA is the total emissions for South Africa allowable as part of the Nationally Determined Contribution

Emissions CB/MP is the total emissions covered by the scope of the Carbon Budget and Mitigation Plans regulations.

Emissions Outside CB/MP are all other emissions that are outside the scope of the Carbon Budget and Mitigation Plans regulations.

CB Industries Aggregate is the Carbon Budget industries aggregate allocation. The allowable aggregate emissions for all industries represented by the applicable listed activities. This aggregate allowance is informed by the outcome of the Sectoral Emissions Targets (SETs).

NER is the New Entrants Reserve, calculated at 5% of the CB Aggregate.

Implementation of the NER

In terms of the operation of the New Entrants Reserve, the following principles guide its implementation:

1. The reserve is calculated on a per commitment period basis.
2. The reserve is allocated from on a first-come, first-served basis.
3. The reserve is not strictly for new data providers but can be used for existing data providers who are starting new facilities or significantly increasing existing capacity.
4. If the reserve is fully depleted, no new entrants allocations will be considered.
5. Carbon Budget allocations cancelled and no longer in use, due to discontinuation, temporary care, indefinite shutdown, or significant capacity reductions will be added back to the new entrants reserve.

Allocating from the New Entrants Reserve (NER):

Data required to be submitted to apply for an allocation from the reserve:

Sector and Industry Type:

- **Industry Classification:** Identify the industry sector in which the company operates, such as energy production, mining, etc. Different industries have vastly different carbon budget allocation methodologies, so allocations will be sector- and listed activity-specific.

Planned Production Capacity or Operational Scale:

- **Planned Output or Capacity:** The company's forecast for production output (e.g., tons of steel, megawatt-hours of electricity) or operational scale is the key input for allocating emissions using the tiered methodological hierachy.

Technology and Processes to Be Used:

- **Process Technology:** Information on the specific technologies, production methods, or manufacturing processes planned to be used is crucial. Certain technologies are more emissions-intensive (e.g., coal-fired plants vs. gas for energy generation) and will carry different budget allocation benchmarks.

Production Timeline:

- **Projected Timeline for Scaling Operations:** Understanding when the company expects to ramp up its operations can help with accurate emissions allocations per commitment period.

Example Case:

Please note that the stated emissions quantities are purely for illustrative purposes and are in no way indicative of the actual reserve.

Scenario Overview

- **Total Allowable Emissions Budget for SA:** 1,000 $MtCO_2e$ (megatonnes of CO_2 equivalent) for the commitment period
- **Emissions Outside CB/MP:** 265 $MtCO_2e$
- **Emissions CB/MP:** 735 $MtCO_2e$ = CB Industries Aggregate + NER
- **NER Allocation Percentage:** 5% of CB Industries Aggregate
- A company in the mining sector applies for a New Entrants Reserve allocation for a new operation that will produce **5 Mt of ore annually**, using **diesel-powered mining equipment**. The operation is expected to start in **2027** (3 years applicable in the 1st commitment period).

Step 1: Calculate the New Entrants Reserve

Using the provided formulas:

Emissions CB/MP = CB Aggregate + NER
NER = 5% × CB Aggregate

Substitute the values:

- **Emissions CB/MP** = 735 $MtCO_2e$
- **NER** = 0.05 CB Industries Aggregate
- **735 =** CB Industries Aggregate + 0.05(CB Industries Aggregate)
- **CB Industries Aggregate** =700
- **NER** = 700 X 0.05 = 35
- The New Entrants Reserve is **35 $MtCO_2e$** for the commitment period.

Step 2: Determine Industry Benchmarks

- For the mining sector, a benchmark emissions intensity is calculated at **0.5 $MtCO_2e$ per Mt of ore produced** based on technology and practices.

The applicant forecasts producing **5 Mt of ore per year**, so the annual emissions allowance would be:

Annual Emissions Budget = 5 Mt ore × 0.5 $MtCO_2e$/Mt ore = 2.5 $MtCO_2e$

Step 3: Allocate from the NER

The mining company plans to operate for **3 year of the commitment period**, so the total emissions requested is:

Total Requested Allocation = 2.5 $MtCO_2e$/year × 3 years = 7.5 $MtCO_2e$

This falls within the available NER of **35 $MtCO_2e$**. Therefore:

- **Approved Allocation:** 7.5 $MtCO_2e$
- **Remaining NER:** 35 – 7.5 = 27.5 $MtCO_2e$

Step 4: Adjust for Future Updates

If another new entrant applies or unused allocations are returned to the NER (e.g., a facility shuts down), the remaining NER can be recalculated accordingly for the commitment period.

Summary

- **NER Allocation for Mining Company:** 7.5 $MtCO_2e$ for the commitment period
- **Remaining NER after Allocation:** 27.5 $MtCO_2e$ for the commitment period
- The mining company's emissions allowance aligns with industry benchmarks and contributes to the economy-wide emissions cap under the NDC framework.

8. PROGRESS REPORTING

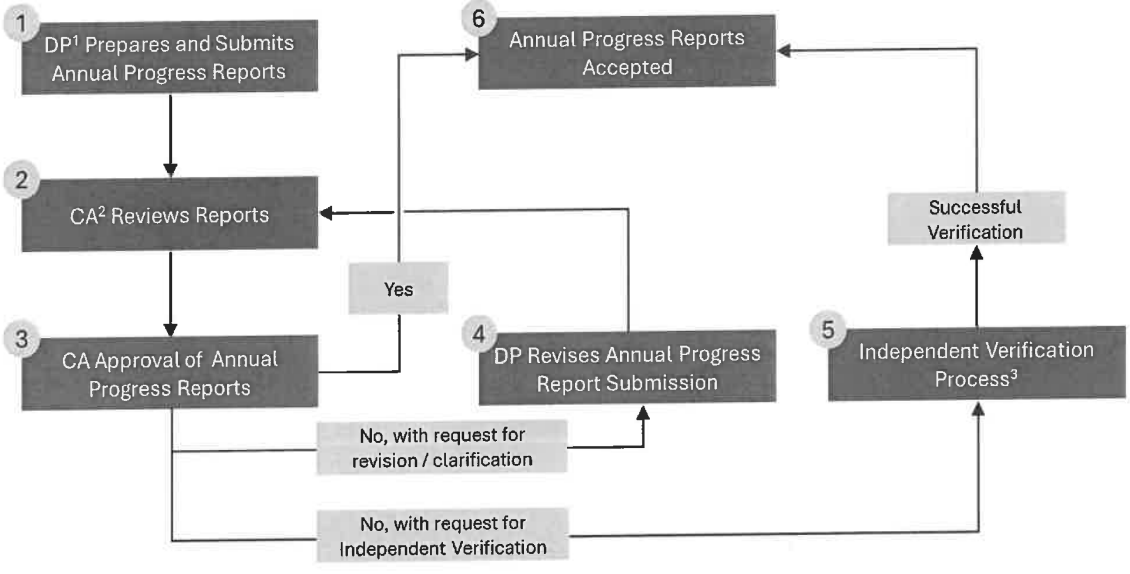
Progress reporting is fundamental to the both the Competent Authority and Data Providers. Annual progress reporting enables the Competent Authority to judge compliance to the budget allocations and

mitigation plans, while Data Providers will face a number of penalties related any non-compliance to their approved budget and mitigation plan.

The Annual Progress Report has two components, as defined in Annexures 8A and 8B in the Carbon Budget and Mitigation Plans Regulations. The first component covers progress related to the emissions allocation, while the second reports on progress towards the mitigation plan interventions.

The Annual Progress Reporting Cycle will follow the same reporting cycle established in the NGERs, where annual reports must be submitted by the Data Provider to the Competent Authority via the relevant web-based platform (such as SAGERS) by the 31st of March for the preceding calendar year – i.e. the progress report covering 2025, is to be submitted by March 31, 2026.

The progress reporting cycle is illustrated in the following flow diagram:



[1] DP = Data Provider

[2] CA = Competent Authority

[3] Independent Verification Process flow diagram available in Section 9

Carbon Budget Annual Progress Report

The data provider is responsible for preparing the annual progress report, and the information contained therein. The progress report template is provided in Annexure 8A of the Carbon Budget and Mitigation Plans regulations.

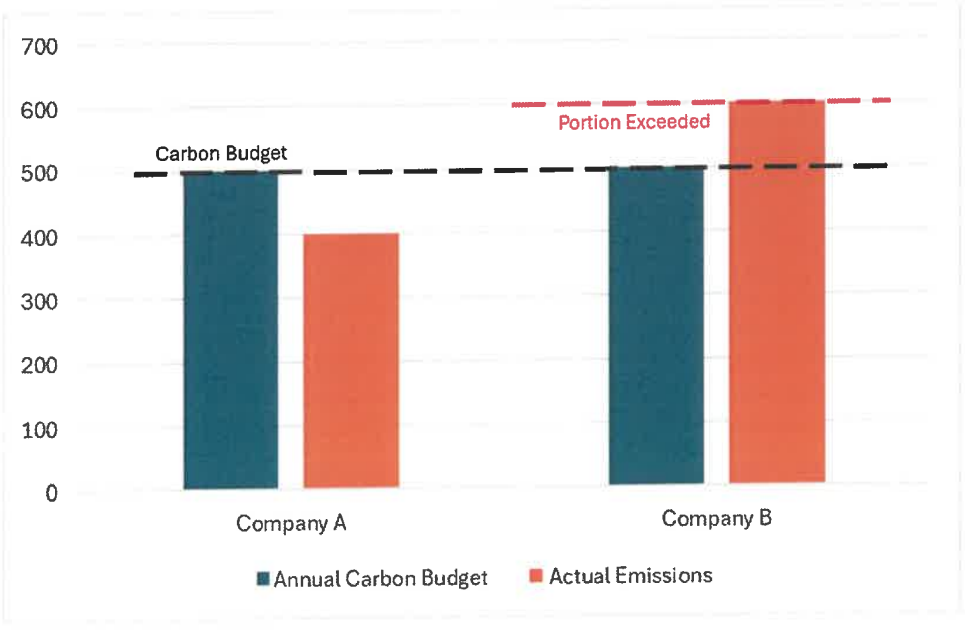
On a facility basis, the progress report is populated, with each row of the table applicable for a specific facility of the Data Provider. The terms found in the progress report template are explained below:

Term	Description
Emission Scope	Refers to one of the Scope 1, 2, or 3 emissions for the facility that is being reported. Although budgets are only allocated for Scope 1, direct emissions, an entity may elect to voluntarily disclose information related to

	their Scope 2 indirect heat and energy emissions and their Scope 3 indirect value chain emissions.
Annual Carbon Budget	The portion of the total carbon budget allocation approved for a Data Provider, annualised and disaggregated on a facility basis. The methodology employed to annualise and disaggregate a carbon budget allocation is up to the discretion of each individual Data Provider.
Actual Emissions	The total emissions per Scope per facility for the year that the progress report covers. For Scope 1 emissions, emissions must align with the prescribed methodology as per the NGERs and their accompanying Methodological Guideline for the Quantification of GHG Emissions. Emissions reported the Competent Authority under this existing reporting programme should for the basis of actual emissions reported here.
Comparison (Actual vs. Projected)	The sum of the Annual Carbon Budget less the corresponding Actual Emissions. The difference is to be denoted by a positive sign if actual emissions are below the carbon budget allocation, and to be denoted by a negative sign if actual emissions are above the allocated carbon budget/assigned amount. The convention for Actual v Projected Emissions is as follows: • Emissions are denoted with "+" sign if the facility remains within budget • Emissions are denoted with a "-" sign if the facility exceeds its budget

As an example, Company A, stays within their Annual Carbon Budget, while Company B exceeds it. In the case illustrated below, Company A would indicate the comparison with a +100, while Company B would indicate it with a -100.

Company B would then be subject to compliance penalties if this was the case at the end of the commitment period. As prescribed by the Carbon Tax Act, Company B would be subject to a higher-than-normal tax rate on this portion of emissions that has exceeded its budget for the commitment period.



Mitigation Plan Annual Progress Report

The Annual Progress Report for Mitigation Plan is described in Annexure 8B of the Carbon Budget and Mitigation Plan regulations. For the sake of the progress reporting for mitigation interventions, reporting is done on a granular level using specific mitigation measures per facility. These measures would have first been proposed in the Mitigation Plan that was accepted by the Competent Authority at the beginning of the commitment period.

Any methods and assumptions used as a basis to judge the impact of the mitigation measure must be documented and supporting evidence kept in order to substantiate the progress reports in the case of a review by the Competent Authority or Independent Validation and Verification.

For each measure, a progress indicator is defined. For example, this could be the coal consumption in the boilers at a given facility (in tonnes per annum). This indicator and its projections would be defined in the Mitigation Plan, with progress against the initial mitigation projections reported in the Annual Progress report.

The Data Provider may provide additional qualitative reasoning as support for the progress, or lack thereof, at the end of the progress report. This could be reasons and extenuating circumstances out of the control of the data provider, such as market conditions, resource availability, loadshedding etc.

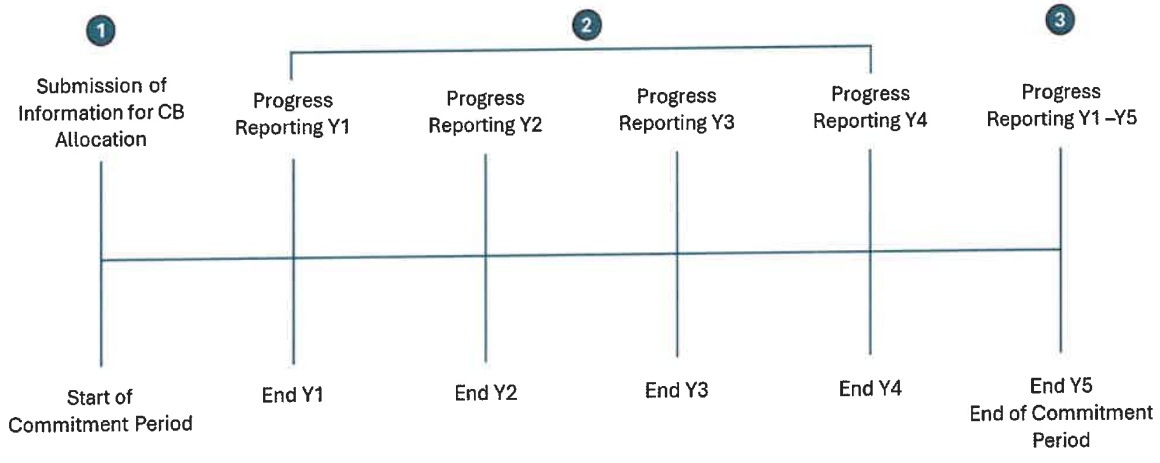
9. VALIDATION AND VERIFICATION OF CARBON BUDGETS AND MITIGATION PLANS

Under the NGERs, provision is made for the validation and verification of information submitted to ensure good quality and accurate reporting as part of the reporting programme. To facilitate the validation and verification process, the DFFE prepared the Technical Guidelines for The Validation And Verification Of Greenhouse Gas Emissions (hereafter referred to as Verification Guidelines). These Verification Guidelines set out the processes for Competent Authority reviews and the independent verification procedures of submitted data.

The reviews and verifications are conducted in the context of the methodologies defined by the Methodological Guidelines for Quantification of Greenhouse Gas Emissions. The Verification Guidelines also prescribe the procedures for accreditation of independent assessors. The Verification Guidelines, much like this document, will act as a companion to the Carbon Budget and Mitigation Plan Regulations. The Competent Authority reviews, independent verification procedures, and independent assessor accreditations will be conducted according to its guidance. Where necessary additional context is required to cover the validation and verification of carbon budgets and mitigation plans, this section will provide it.

Validation and Verifications Frequency and Scope

There will be three instances of independent validation and verification per commitment period. Each of these instances will have a unique scope dictated by the stage of the commitment period for which the verification is taking place. These three instances are further described below:



Verification Instance	Timing	Scope

1	This verification and validation takes place before the commencement of the commitment period, in order to ensure that budget allocations are accurate.	Included in this scope is the data populated in the Submission of Information for Carbon Budgets Allocation submission. This submission, and all information used to prepare this submission, will for the basis of the verification. The verification covers the GHG Reporting done in the baseline years before the commitment period begins, as was submitted under the NGERs reporting programme. Forward-looking production and emission projections for the commitment period will be validated. This verification and validation will also independently assess the validity of the Mitigation Plan, to be implemented and reported against throughout the commitment period. **Key objective**: Assess if the information used to generate the carbon budget was derived correctly. Confirm validity of the Mitigation Plan. **Key document:** Submission of Information for Carbon Budgets Allocation, Annexure 5 of the CB/MP Regulations
2	This verification and validation takes place at any time during the commitment period and is triggered at the discretion of the Competent Authority.	Included the scope of this verification is the Annual Progress Reports for Carbon Budgets and Mitigation Plans. The data which makes up the carbon budget progress report will be sourced from SAGERS, therefore the verification will be much like those conducted under the NGERs, with the addition of taking those reported emissions and disclosing them in the context of carbon budget compliance. The verification will also include the approach that Data Provers take with regard to the annualization of their emissions. Forward-looking production and emission projections for the remainder of the commitment period will be validated. **Key objective**: Confirm commitment period progress is reported correctly. **Key document:** Annual Progress Reports for Carbon Budgets and Mitigation Plan
3	This verification and validation takes place at the end of the commitment period, in order to accurately judge Carbon Budget and Mitigation Plans compliance.	This verification will be based on the historical data reported for the full 5-year commitment period. The intention of this verification is to accurately judge compliance with the budget allocated, and mitigation measures implemented. **Key objective**: Confirm compliance with the Carbon Budget and Mitigation Plan for the commitment period. **Key document:** Consolidated progress reports covering the full commitment period.

10. SOCIO-ECONOMIC CONSIDERATIONS

As described in the Climate Change Act section 27(2), the Competent Authority must take all relevant considerations into account when allocating a carbon budget. Included in these considerations, are the socio-economic impacts of the allocation. Data Providers are therefore encouraged to submit socio-economic impacts they deem noteworthy to the Competent Authority for consideration in the allocation process.

Individual Data Providers are responsible for the quantification of these socio-economic impacts and must provide supporting evidence of the impacts they describe. A framework for the submission of socio-economic information, and example case, is presented below to guide submissions. The framework is an example and Data Provides may add to it where necessary.

Framework for Submission of Socio-Economic Information

To facilitate informed Carbon Budget allocation, the Competent Authority encourages companies to submit socio-economic information relevant to their operations. Below is a framework for preparing such submissions:

Submission Framework

1. **Company Overview:**
    - Name of the company and industry sector.
    - Geographic scope of operations.
    - Key economic contributions (e.g., revenue, employment levels).
2. **Description of Impacts:**
    - Describe anticipated economic impacts (e.g., cost increases, competitiveness). Some examples include
        1. Changes in production costs due to new equipment or processes.
        2. Potential reductions in profit margins or overall revenue.
        3. Impact on competitiveness within local or global markets.
        4. Costs of workforce retraining and skill development.
        5. Investments required for research and development of compliant technologies.
        6. Changes in supply chain costs or dependencies.
        7. Potential loss or gain of market share.
        8. Cost savings from improved operational efficiency or subsidies.
        9. Changes in consumer prices due to increased production costs.
        10. Capital investment requirements for facility upgrades.
    - Detail social impacts, including potential effects on employees and local communities.
        1. Workforce reductions or layoffs resulting from increased costs.

2. Potential creation of new jobs in compliance-related sectors.
3. Impact on employee wages or benefits.
4. Displacement of workers due to relocations.
5. Access to retraining and upskilling opportunities for employees.
6. Effects on health and safety conditions in the workplace.
7. Changes in community investment or sponsorship programs.
8. Public perception and community relations regarding environmental efforts.
9. Impacts on local economies reliant on affected industries.
10. Broader societal benefits such as improved air quality or public health outcomes.

3. **Supporting Data:**
    - Provide quantitative data, such as projected financial losses, workforce reductions, or investments required for compliance.
    - Include relevant case studies or examples from similar regulatory contexts.
4. **Proposed Solutions:**
    - Suggest adjustments or alternative approaches to compliance.
    - Outline potential mitigation measures for negative impacts, such as incentives or concessions.
5. **Contact Information:**
    - Provide details of a designated representative for follow-up discussions.

Example Submission

Company Name: Example Company A

Industry Sector: Chemicals

Geographic Scope: Operations across three regions (Region A, B, C).

Description of Impacts:

- **Economic Impact:**
  - Projected compliance costs: $15 million over five years.
  - Anticipated reduction in output by 10% due to increased material costs.
- **Social Impact:**
  - Potential layoff of 100 employees in Region B.
  - Reduced community investment programs by 20% by 2030.

Supporting Data:

- Financial analysis of increased material costs and required retrofitting expenses.
- Workforce impact report, including regional employment statistics.

Proposed Solutions:

- Implement a phased compliance timeline with more lenient budget allocation.
- Offer tax credits for early adoption of emission reduction technologies.
- Allocate grants for employee retraining programs.

Contact Information:

- **Representative:** Jane Doe, Chief Sustainability Officer
- **Email:** jane.doe@companyA.com
- **Phone:** (555) 123-4567