



forestry, fisheries
& the environment

Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

DRAFT FRAMEWORK FOR SECTORAL EMISSION TARGETS

30 June 2021

TABLE OF CONTENTS

1.	Introduction.....	1
1.1	Who is this Framework for?	1
2.	Background	3
3.	International perspective on Sectoral Emission Targets setting.....	5
3.1	Domestication of the SETs experience to South African context	6
4.	Policies and Measures have important role in achieving Sectoral Emission Targets.....	7
4.1	Classification of Policies and Measures.....	8
4.2	Criteria for selecting Policies and Measures for Sectoral Emission Targets	9
4.3	Process to be followed in determining Sectoral Emission Targets.....	12
4.4	Principles to be considered when determining the Sectoral Emissions Targets	13
5.	Roles and Responsibilities.....	16
6.	Reporting, Monitoring and Evaluation of the Sectoral Emission Targets	18
7.	What are the next steps?	18
8.	Appendix I: South African LEDS Implementation Plan	21
9.	Appendix II: Criteria for PAMs to be included to inform SETs.....	22
10.	Appendix III: Trend assessment to inform the scoring and prioritisation matrix to assess the PAMs in response to South African QEERTS for Non-AFOLU.....	23
11.	Appendix IV: Examples of PAMs that could inform the first phase of the SETs	26
12.	Policies and Measures for DALRRD SETs	30

LIST OF FIGURE

Figure 1: Summary of the Sectoral Emission Target process.....	2
Figure 2: Elements of the mitigation system for South Africa.....	3
Figure 3: Three rolling 5 year periods of SETS.....	12

LIST OF TABLE

Table 1: Domestication of SETs based on the international experiences.....	6
Table 2: Categories of Policies and Measures and their examples.....	8
Table 3: Criteria to determine Policies and Measures for Sectoral Emission Targets.....	10
Table 4: Roles and responsibilities of various structure in the Sectoral Emission Targets process.....	16
Table 5: Next Steps.....	18
Table 6: The three phases of the just transition.....	21
Table 7: Scoring Matrix for assessing PAMs.....	22
Table 8: Trend assesment to inform scoring and priotisation matrix to assess from non-AFOLU.....	23
Table 9: Trend assesment to inform scoring and priotisation matrix to assess from AFOLU.....	24
Table 10: Climate Change Mitigation activities from AFOLU.....	30

1. INTRODUCTION

South Africa has clear goals for climate change mitigation in national policy, and an international commitment to reduce greenhouse gas emissions that is consistent with national policy. The Department of Forestry, Fisheries and the Environment (DFFE) is in the process of developing the climate mitigation system for South Africa, which seeks to drive down greenhouse gas emissions from the economy (See Figure 2 below). One of the instruments that is to be included in this system is Sectoral Emission Targets (SETs) (previously known as Desired Emission Reduction Outcomes in the National Climate Change Response Policy). SETs are either quantitative or qualitative greenhouse gas emission targets or aspirations assigned to an emitting sector or sub-sector, over a defined time period. SETs will be defined and allocated as soon as the Climate Change Bill becomes law. These will be determined for three rolling 5-year periods; and will be reviewed every 5 years.

Emitting sectors or sub-sectors would need to align, adjust, upscale and/or develop policies and measures (PAMs) to achieve their allocated SETs. In addition to PAMs that are being implemented by national government, many sub-national (provincial and local) government departments are undertaking activities that contribute to the national mitigation, adaptation and resilience efforts. The Climate Change Bill makes provision for the provincial and local government spheres to conduct climate change needs and response assessment, and based on this, develop and implement climate change response implementation plan(s) as a component of and/or in conjunction with provincial, metropolitan or district municipality's planning instruments policies and programmes. This should allow for the provincial and local governments to also contribute to the SETs process, and not just the national sector departments.

The purpose of this Framework is to outline an approach that DFFE would follow when coordinating the process towards allocation and implementation of Sector Emission Targets (SETs) with the line sector departments, provinces and local governments.

1.1 Who is this Framework for?

This Framework document is for stakeholders who are interested in understanding how sector emission targets will be developed to fulfil the government's greenhouse gas emission reduction ambitions. It provides a roadmap for the following:

- i. methodically developing our evidence base approach to allocating the sectoral emission targets;
- ii. Stakeholder engagement outline; and
- iii. timeous updates.

Once the proposed approach is developed in consultation with various government stakeholders, businesses, communities and civil society will have an opportunity to provide input through a public consultation process expected early 2021.

This Framework document has the following sections:

Section 2 provides a brief background to the evolution of the sectoral emission targets;

Section 3 gives an international perspective on sectoral emission targets setting;

Section 4 outlines the role that the policies and measures have in the sectoral emission targets process;

Section 5 highlights the process that South Africa would follow to determine sectoral emission targets, including the principles which will be considered to inform a robust and credible process;

Section 6 outlines the main role players in managing the sectoral emission targets process;

Section 7 makes provision for the reporting, monitoring and evaluation of the sectoral emission targets; and

Section 8 outlines the next steps to be followed in the process until the sectoral emission targets get implemented.

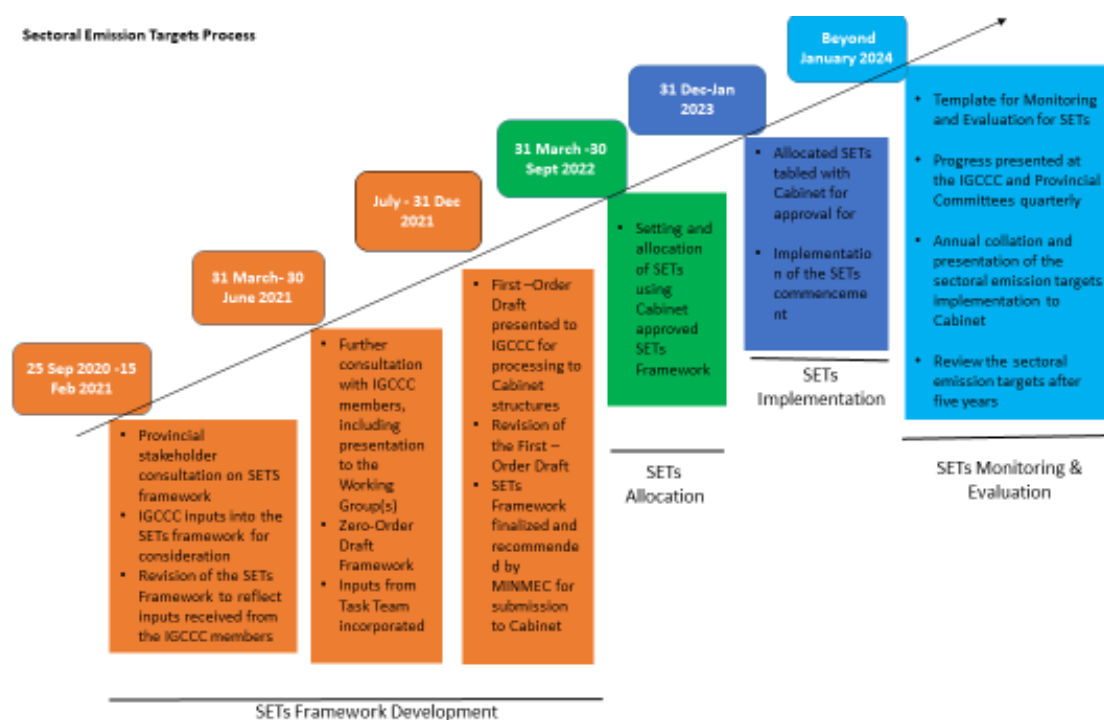


Figure 1: Summary of the Sectoral Emission Target process

2. BACKGROUND

The development of the overall mitigation system, to achieve greenhouse gas emissions reduction, is currently underway, and will include a range of measures as contemplated in the National Climate Change Response Policy, aimed at achieving the overall national goal, for the long term emissions trajectory range for the whole economy to “peak between 2020 and 2025, plateau for a decade, and decline there-after”. This is in line with our international commitments – Copenhagen Accord, 2009 and the Paris Agreement, 2015. The overall mitigation system aimed at achieving the overall national goal and contributing towards South Africa’s nationally determined commitment submitted to the UNFCCC in 2015, was introduced in phases. Phase one (2016-2020) is voluntary as there is no legal basis to set emission limits for sectors or companies. The second and subsequent phases (post-2020 period) will only become mandatory when climate change response legislation is in place. The framework for this system was approved by Cabinet in 2015. The process to develop the Climate Change Act has begun and envisaged to conclude soon. This would allow the elements of the system to be legally enforceable. Figure 2 below depicts the elements of the mitigation system.

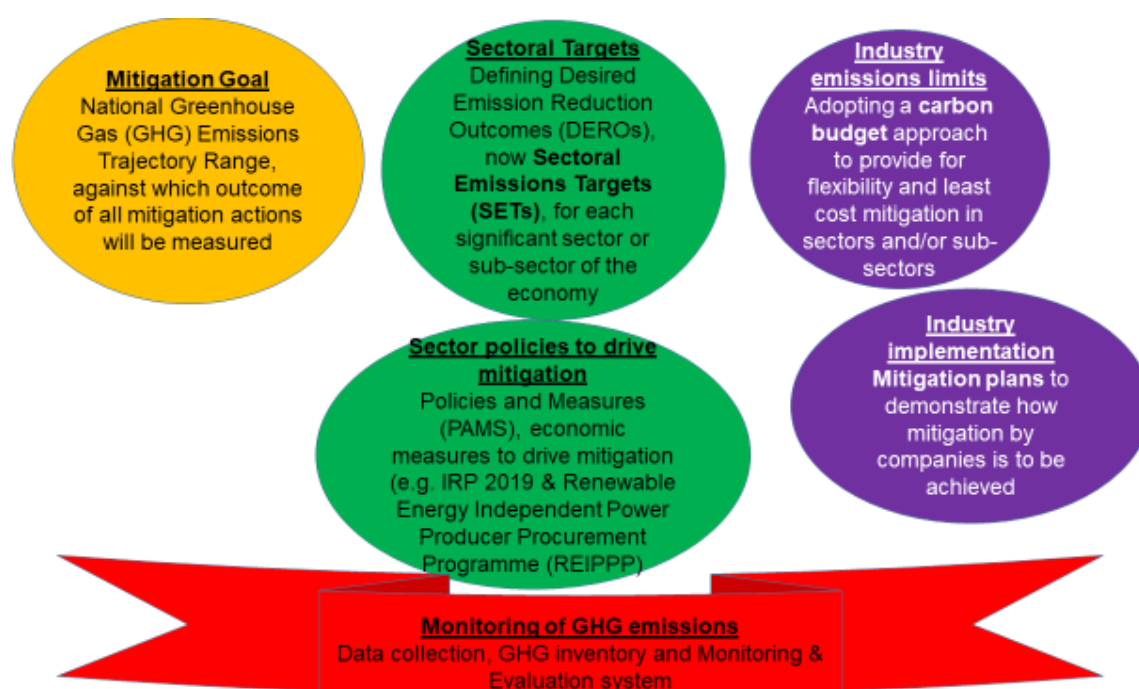


Figure 2: Elements of the mitigation system for South Africa

Mitigation goal or the National GHG Emissions Trajectory: the performance benchmark against which the collective outcome of all mitigation actions will be measured. The current benchmark is defined by the “Peak, Plateau and Decline” Trajectory.

Sectoral emission targets: Climate Change Bill defines Sectoral Emission Targets as the greenhouse gas emissions reduction goals, either qualitative¹ or quantitative², applicable to sectors or sub-sectors over a period of time. In the NCCRP, these were referred as DEROs.

Policies and Measures: The manner in which the national departments planning instruments, such as policies and programmes, seek to mitigate emissions from the sector in line with the sectoral emissions target, is referred to as “policies and measures”. Thus, sectoral policies and measures are critical for the implementation of the sectoral emission targets.

Carbon budgets: A carbon budget sets the maximum volume of emissions from certain activities that a company is allowed to emit over a certain period. By assigning a carbon budget to a company, an indication is provided of the extent of greenhouse gas mitigation that is permitted within a specific time period. Furthermore, by providing companies with an understanding of how budgets are likely to be assigned in future phases, as well as how the budgets will be impacted by the shape of the trajectory, it sensitises them to how mitigation requirements may change in the future (even if the future quantum is not specified). Carbon budgets are allocated to individual companies, to private and public sector entities. The methodology for allocating the carbon budgets is being developed through a separate process from the sectoral emission targets and as such this Framework does not focus on carbon budgets.

Mitigation Plans: These are plans that companies prepare and implement to achieve their allocated carbon budgets. The plans describe mitigation measures that will be implemented over a period of the allocated budget. In the interim (before the promulgation of the Climate Change Act), this process is regulated under the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) - National Pollution Prevention Plans (PPP) Regulations, 2017.

Monitoring and Evaluation (Reporting): A national system of data collection to provide detailed, complete, accurate and up to date emissions data in the form of a Greenhouse Gas Inventory and a Monitoring and Evaluation System to support the analysis of the impact of mitigation measures.

¹ Qualitative greenhouse gas emissions reduction goals are intangible set of goals that if achieved could lead to emission reduction, for example, behavioural change. Though progress towards the achievement of the goal can be measured, monitoring the qualitative target is more complex.

² Quantitative greenhouse gas emissions reduction goals represents a set of desired emission reduction results that can be achieved over a given timeframe. The goal is expressed and measured in by a metric or statistic.

The SETs Framework builds on progress that has been made on the development of the Climate Change Bill. The Bill was published for public comments in June 2018 and negotiated at the National Economic Development and Labour Council (NEDLAC). The inputs received during these processes suggest that the conceptualization of the sectoral emission targets moves away from strictly imposing emission reduction targets to emitting sectors or sub-sectors, but rather broaden it to accommodate both qualitative and quantitative emission reduction goals. The other issue that needs clarification is the relationship between the sectoral emissions targets and the carbon budgets - two key important emission reduction instruments as contemplated in the Climate Change Bill.

3. INTERNATIONAL PERSPECTIVE ON SECTORAL EMISSION TARGETS SETTING

As part of the development of the South African SETs Framework, an international SETs review was undertaken which examined several approaches from different jurisdictions. The reviewed countries include Costa Rica, France, Fiji, Germany, Portugal and United Kingdom (UK). The approach to setting sectoral emission targets is similar across these countries reviewed. In summary, the approach includes the following elements:

- An overall national end goal/target/vision is established at a Presidential level. For example: “net carbon neutral by 2050”, “90% reduction off 1990 levels by 2050”, etc.;
- A detailed, bottom-up modelling approach is applied, covering all sectors of the economy, using different tools for different sectors where appropriate. This is led by Presidency, supported by the environment ministries;
- Scenarios are presented that consider different pathways to achieving the vision – also led by Presidency; and
- A set of rolling three-periods (short-, medium- and long-term) actions is identified – this led by environment ministries.

In terms of implementation, roles, responsibilities and timelines are assigned to each of the actions, and their costs are identified. Furthermore, the necessary underlying policy and legislation is put in place by ministries responsible for climate change to enforce the targets and ensure that they are adhered to. Targets are legally binding in only two of the six countries reviewed. In France, targets have been missed and future targets are currently unlikely to be met in the UK. It is thus not clear that making targets legally binding has a meaningful impact of the probability that they will be met.

3.1 Domestication of the SETs experience to South African context

The countries that were reviewed used their long-term decarbonisation plans, clean growth and low emission development strategies to determine their sectoral emission targets. South Africa has just finalized and submitted Low Emission Development Strategy (LEDS) to the United Nations Framework Convention on Climate Change (<https://unfccc.int/sites/default/files/resource/South%20Africa%27s%20Low%20Emission%20Development%20Strategy.pdf>). This LEDS could be used as a vehicle to implement the SETs in the country. The LEDS implementation plan is attached in **Appendix I**.

Table 1: Domestication of SETs based on the international experiences

International experience	Local context
An overall end goal/target/vision is set for the country as a whole	In 2018, the National Planning Commission started the process to develop a vision for the country – “transition to low carbon economy and climate resilience”. This work has halted and the dates for resumption is not yet communicated. In the absence of an agreed quantitative articulation of the vision to low carbon transition, the Peak, Plateau, Decline Emissions Trajectory Range, as reflected in the National Climate Change Response Policy and National Development Plan, is used as the benchmark against which the performance of South Africa’s climate change mitigation effort is measured. The Climate Change Bill makes provision for regular updates of this trajectory, through which it can be better placed within the context of the Paris Agreement. The outcomes of the National Planning Commission process to develop a common vision for the country in 2050, which is currently underway, should be used to update the SETs. In the development of the vision, South Africa will give due consideration to the IPCC Special Report on 1.5°C, which represents the latest available science regarding this goal.
A detailed, bottom-up modelling approach is applied, covering all sectors of the economy, using different tools for different sectors where appropriate	Once the vision to low carbon transition is finalized (currently being done by the National Planning Commission), sectoral plans and programmes will have to be analyzed in significant detail, laying out different scenarios to understand trajectories of investment, technology take-up, emissions reduction, and market change. The outcome of this work should be used to update or inform future SETs.
Scenarios are presented that	The National Planning Commission vision will be accompanied by clear

consider different pathways to achieving the vision	pathways and these pathways should inform future SETs.
Short-, medium- and long-term actions identified	The Climate Change Bill defines the SETs and prescribes that they are determined over three progressive phases. At the end of every phase, the SETs are reviewed and updated for the subsequent phases. The DEFF will be responsible for auctioning this.
Policy and legislation enforce the targets and ensure that they are adhered to	The DEFF will be responsible for coordination of the target setting process and reporting of the implementation of the sectoral emission targets.

The analysis drawn from Table 1 above, indicates that the allocation of SETs endeavours to be consistent with the national target or the vision. This is with an overall understanding of the sectoral narratives of change and how they collectively feed into the national vision. It would make sense that the current SETs process is based on the existing and already planned government policies and measures since the vision and pathways work is still pending.

Building on existing and planned policies offers numerous benefits, such as optimizing resources and securing buy-in of key stakeholders. The allocation process of SETs may change for the next phase in response to the finalization of the nation vision and associated pathways. The South Africa LEDS, which also highlights the role SETs implementation will have on South Africa's transition to low carbon economy, will be reviewed at least every five years or earlier. More so, should there be significant changes in sectoral or national plans/programmes which result in a big structural changes, growth or decay of the economy and major global events that impact on its content or implementation. It is advisable that the review is aligned with the evaluation of the SETs.

4. POLICIES AND MEASURES HAVE IMPORTANT ROLE IN ACHIEVING SECTORAL EMISSION TARGETS

As mentioned in earlier sections, emitting sectors/sub-sectors would implement policies and measures to create enabling environment to make sure that emissions are reduced to achieve the sectoral emission targets. Several government departments and local, and provincial authorities are already implementing mix of measures that set mitigation as a goal or have significant mitigation benefits. Examples include energy efficiency measures and the extension of efficient public transport, such as bus rapid transit systems and passengers and freight modal shift.

4.1 Classification of Policies and Measures

Policies and measures may include regulatory instruments (specifically legislation, regulations and standards), economic instruments (for example, incentives and taxes), government procurement programmes or direct investment by government. Measures may be cross-cutting (across sectors) or specific to individual sectors or subsectors. They may achieve abatement through action directly by government, or through other stakeholders.

Table 2: Categories of policies and measures and their examples

Category	Sub-category	Explanation	Examples
Regulatory Measures	Legislation, plans, strategies and Standards	These measures have a direct impact on emissions by setting legally enforceable limits or standards	Integrated Resource Plan, Integrated Energy Plan, National Energy Efficiency Strategy, Energy Efficiency Standards, etc.
Economic Measures	Tax, allowances, subsidies and offsets	These measures provide economic incentives or disincentives on emissions by imposing taxes, allowing tax rebates or providing subsidies	Carbon Tax, 12L tax rebates, electricity generation levy, etc.
Direct Government Actions	Government procurement infrastructure investments	Government takes direct action to effect abatement through procurement and investments in infrastructure and technology which give rise to lower greenhouse gas emissions.	Procurement and investment in the transport sector (e.g freight modal shift and mass public transit), Waste Phakhisa, etc.
Support measures	Voluntary actions, support for research	Refer to a wide range of actions related to	Support research development and innovation,

	and development	education, capacity, research development and deployment or government support for voluntary actions	funding related to capacity building and energy/emissions audit; primary education which has a long term indirect effect, etc.
Information programmes		Refers to a programmes that, for example, raise an awareness of energy conservation methods	Labelling programmes, energy advice programmes

4.2 Criteria for selecting Policies and Measures for sectoral emission targets

Policies and measures for sectoral emission targets should drive outcomes that are beneficial for emission reduction or transforming the economy to a low carbon future. To this end, a set of criteria to determine which policies and measures would be prioritised for sectoral emission targets have been developed. Policies and measures to be considered have to meet all the criteria set out in Table 3, in order to be included to inform sectoral emission targets. The referenced policies and measures could be used as the commencement for sectoral emission targets development in certain sectors of the economy. Most notable sectors include, [Energy, Industry, Agriculture, Forestry and Land Use (AFOLU), Transport and Waste].

Table 3 outlines the Sectoral Emissions Targets (SETs) criteria that will be used to identify and prioritise key mitigation actions / measures within South African Policies. The criteria is anchored by the principles in the following policy prescripts including but not limited to the: The National Climate Change Response Policy (NCCRP), The Constitution of the Republic of South Africa, the Bill of Rights, the National Environment Management Act (NEMA), National Development Plan (NDP), Sustainable Development Goals (SDGs) and the reporting and review frameworks anchored in the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement. The intent of the scoring matrix is not punitive but a transparent way to engage with sector departments on Policies and Measures (PAMs) including its role to reduce greenhouse gas emissions and highlighting opportunities to enhance resilience and reduce vulnerabilities for poor and marginalised communities.

Table 3: A set of criteria to determine which policies and measures would be considered for sectoral emission targets

Criterion for policy and measure	Description
1. Mitigation elements	<p>The PAMs should contribute to the country's deviation from greenhouse gas emissions "business as usual trajectory" as measured against the benchmark of "Peak, Plateau, and Decline" Greenhouse Gas emissions trajectory that will respond to Quantifiable Economy-wide Emission Reduction Targets (QEERT). Mitigation elements are any action, intervention, process or approach that could lead to a reduction in the GHG emissions and enhancement of carbon sinks emanating from the Intergovernmental Panel on Climate Change (IPCC) sectors</p> <p>The Policies and Measures that include activities that will be used to respond to QEERT, will be prioritised based on the Key Category Analysis of the latest published National GHG Inventory Report (2000 – 2015)³ and the Trend assessment on net GHG emissions and removals will be used to guide and prioritise interventions; planned, adopted and implemented to achieve GHG mitigation goals of the country (attached as Appendix A).</p>
2. Governance Framework	<p>The prioritised PAMs to respond to the QEERTs must be entrenched in the government strategic documents to ensure implementation. If the policies, measures / activities are not defined in the government strategic document, the probability of implementation are minimal or low. Policies, measures / activities must have a clear governance framework to ensure implementation.</p>

³ A key source/sink category is defined as one that is prioritised within the national inventory system because its estimate has a significant influence on a country's total inventory of greenhouse gases in terms of the absolute level, the trend, or the uncertainty in emissions and removals. Key category analysis helps a country to achieve the most reliable inventory given the resources available risk.

3. Needs drive and customised	The climate change mitigation goals, objectives or targets do not necessarily have to be quantitative, as long as associated progress indicators can be translated to measure the climate change effects associated with implementation.
4. Climate change mitigation and adaptation co-benefits	The identified PAMs to reduce the Greenhouse Gas emissions should also contribute to the climate change adaptation referred to co-benefits / non - carbon benefits. The implementation of the PAMs should demonstrate potential to address co-benefits in the climate change adaptation sectors. The National Climate Change Response Policy identifies the following priority adaptation related sectors: water, agriculture and commercial forestry, health, biodiversity and ecosystem, human settlements (Urban, rural and coastal), and disaster reduction and management. The National Climate Change Adaptation Strategy (NCCAS) goes beyond these sectors to include transportation and infrastructure, energy, mining, oceans and coast.
5. Sustainable development goals	The policy and measures should enhance the sustainability of the economic, social and ecological services which is an integral component of an effective and efficient climate change response and should prioritise climate change mitigation interventions that have economic, social and environmental (non-GHGs environmental) benefits.
6. Behaviour change	Policy and measures should prioritise the use of incentives and disincentives, including regulatory, economic, and fiscal measures, to promote behaviour change towards a lower-carbon society and economy. The PAMs should also be transformative to contribute towards a long term goal of net-zero carbon emissions by 2050.

4.3 Process to be followed in determining Sectoral Emission Targets

The Climate Change Bill allows for the sectoral emission targets to include quantitative and qualitative goals that may lead to greenhouse gas reductions for the initial five years, the subsequent five to ten years, and thereafter, ten to fifteen-year period. Thus, for example, the first phase which is projected to be implemented from 1 January 2023 to 31 December 2027 would have sectoral emission targets for 2023 to 2027; 2028 to 2032; and 2033 to 2038. Under the United Nations Framework Convention on Climate Change (UNFCCC), countries are required to submit their nationally determined contributions (NDCs) every five years. The first NDC was submitted in 2015 (<https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/South%20Africa%20First/South%20Africa.pdf>). The second NDC is due in 2020, but due to Covid-19 pandemic, the submission date has been moved to 2021. The sectoral emission targets could therefore be determined to support the already committed NDC for South Africa. This would ensure that the implementation of policies and measures for SETs also account to the implementation of the NDC.

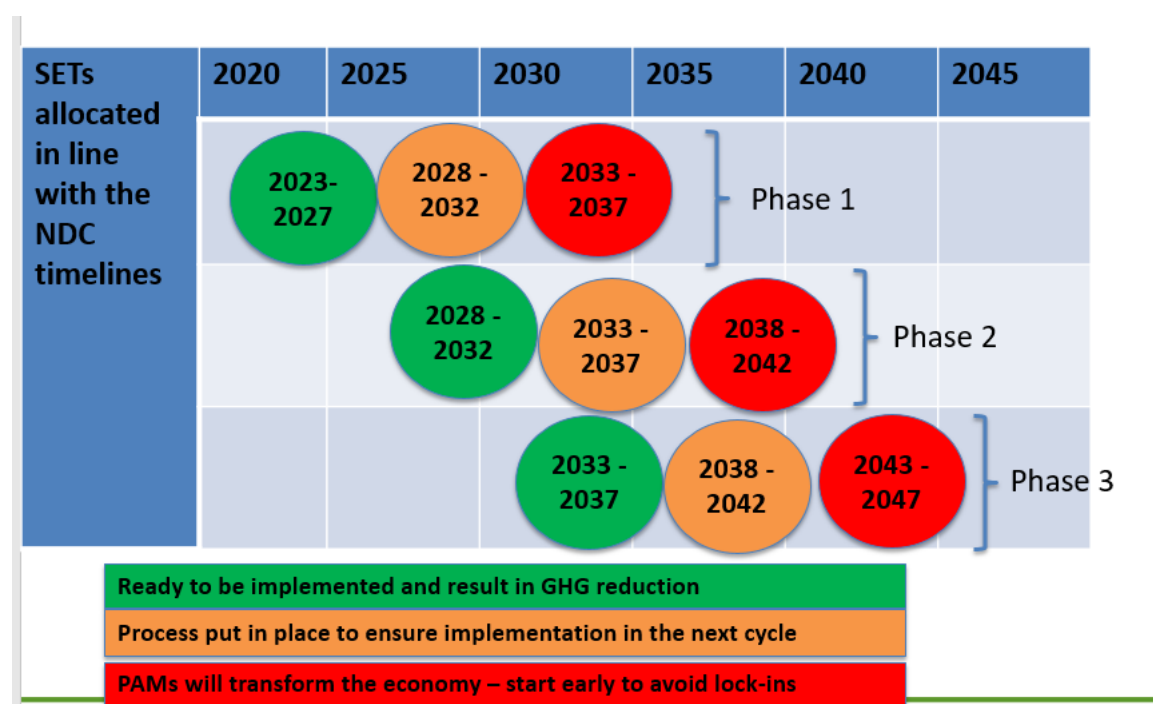


Figure 3: Three rolling 5-year periods of SETs

The sectoral emission targets for each phase will have the following packages (as depicted in Figure 2 above):

- (a) Policies and measures that are currently being implemented and are expected to reduce emission (Green colour coded in Figure 2);

- (b) *Policies that require an enabling environment is established so that emission reduction is achieved in the next phase of the sectoral emission target (Amber colour coded in Figure 2).*
The implementation of these policies and measures would need to be accelerated (policies and measures are already in the public domain but not being implemented or seldom implemented as outlined in the policies and measures).
- (c) *Policies and measures likely to transform the sector(s) (Red colour coded in Figure 2):*
Consensus on country's vision for transition to a low carbon economy and climate resilient society is crucial, in an enabling/determining long term scenarios planning. The outcome would define South Africa's low carbon emission development pathway to the Paris-compatible future, which also addresses our developmental agenda/priorities and needs. Significant changes in sectoral or national plans/programmes that can result in noteworthy structural changes, growth or decay of the economy can be anticipated. Discussions and decisions on these policies and measures need to be expedited to avoid emissions lock-in imposed by investments.

4.4 Principles to be considered when determining the sectoral emissions targets

- a) Sectoral emission targets to be determined in a participatory and inclusive manner. All stakeholders are encouraged to be involved in the process to make inputs into the sectoral emission targets Framework;
- b) Sectoral emission targets must be determined in a transparent manner. The approach to determine and set sectoral emission targets needs to be clear for all to establish how targets were derived;
- c) Sectoral emission targets determination must be evidence based. Data to ascertain sector emission targets will be sourced from sectoral programmes/plans, modelling outcomes (models for PAMs, Mitigation Potential Analysis, Pathways studies, etc.). The DEFF will assist with estimation of emission reduction from policies and measures being considered for sectoral emission targets;
- d) Sectoral emission targets for the initial phase should be determined based on existing and planned policies and measures. Sectoral emission targets will be allocated based on policies and measures that the departments are already implementing and those policies and measures that have been published in the gazette for public to make comments though yet to be implemented. The approach may change for future phases;
- e) Sectoral emission targets to take into consideration the unintended socio-economic implications of implementing the policies and measures to achieve the desired sectoral emission targets;

- f) Sectoral emission targets implementation should include regular monitoring and evaluation, with the expectation of implementation progress reports against allocated sectoral emission targets.

4.5 Overview of the sectoral emission targets setting process

Five steps have been identified to systematically develop clearly defined and impactful sectoral emission targets. Robust input and commitment from stakeholders and government is required to collectively achieve vigorous sectoral emission targets that drive emission reduction outcomes. The steps are as follows:

Step 1: Identification of sector policies and measures to contribute towards sectoral emission targets

National government departments, provincial and local government to identify policies and measures which contribute towards their respective sectoral emission targets. Sectoral emission targets derived from policies and measures which will be evaluated against the criteria and matrix initially determined (See Table 3 above and the attached **Appendix II**). Only policies and measures that perform well against the criteria will be taken on board for the sectoral emission target process (an average of 3 out of 5 points and must have a governance framework for implementation). PAMs that score 2 or less against the Logic Framework Criterion require further engagement with the sector department to remove impediments for PAM to be implemented effectively.

Step 2: Developing fully evidenced sectoral emission targets

Emission reduction is extrapolated from the current performance of individual or collection of policies and measures. The outcome reflects the extent which certain policies and measures are effectively implemented by line department, provincial and local government to achieve emissions reduction. Quantification of historical contribution of the policies and measures may be done to acknowledge and appreciate past efforts by sectors. This information may be helpful in understanding efforts and impact achieved to date.

To determine the sectoral emission target, the existing policies and measures will be projected/modeled to establish possible emissions reductions if implemented effectively (optimally in a sustainable manner - at 100%). Options which include a desired percentile target could be set. Engagements with the respective government stakeholders (line department/provincial/local government), include discussions on percentile targets. Furthermore, support packages encompassing finance, technology and capacity

required to achieve emission reduction milestones at a specific percentile levels. Using the Integrated Resource Plan (IRP) as an example:

- Project/model IRP emission reduction potential should the plan be implemented effectively (at 100%);
- The DEFF to work with the Department of Mineral Resources and Energy (DMRE) to establish status of IRP implementation and transpose the plan (to date) against achieved emissions reductions;
- Understand barriers preventing effective implementation of the IRP;

Step 3: Understanding the socio-economic impacts of the sectoral emission targets

The socio-economic impact of all policies and measures for sectoral emission targets will be conducted for the scenario referred to in Step 2 above. This will be done with the view that the implementation of the policies and measures for sectoral emission targets should be Just – looking at the impact of these policies and measures on economic growth (GDP), employment, household income, employment by skill level and inequality. In addition, impacts of the policies and measures on the non-greenhouse gas environmental sectors such as land, waste management, biodiversity, water and air pollution will be conducted.

Step 4: Develop sectoral emission targets reporting templates

For effective performance monitoring, evaluation and reporting of the allocated sectoral emission targets, templates will be developed in collaboration with the line department, provincial and local governments. The templates will be customised per departments, provincial or local government. Consideration for different levels of implementation maturity of various policies and measures will be taken into account.

The draft templates attached in **Appendix III** give examples of sectoral emission targets templates for policies and measures at different levels of maturity (examples are not exhaustive).

Step 5 Approval of sectoral emission targets by Cabinet

This step requires that DEFF prepares Cabinet submissions presenting all the sectoral emission targets allocated to line departments, national and provincial governments. When the allocated sectoral emission targets are confirmed by Cabinet, the line departments, national and provincial governments commence implementation and periodically provide progress reports. The process for reporting, monitoring and evaluation is outlined in a separate section 7 below.

5. ROLES AND RESPONSIBILITIES

The process for setting, implementing and monitoring the sectoral emission targets will be managed through the existing institutional structures for managing climate change responses in the country as set out in the National Climate Change Response Policy, 2011. Furthermore, the Climate Change Bill proposes the establishment of the Presidential Climate Commission (PCC) and a Provincial Committee on Climate Change (PCCC). These two structures will be accountable for the management and implementation of sectoral emission targets.

Table 4: Roles and responsibilities of various structures involved in the sectoral emission targets process

Structure	Functions as they relate to the sectoral emission targets
Department of Environment, Forestry and Fisheries	Overall coordination of the target setting process and reporting of the implementation of the sectoral emission targets. In addition, implement the environmental sector policies and measures for sectoral emission targets – waste, biodiversity, ocean and forestry.
Provincial departments responsible for environment	Overall coordination of the provincial implementation of the climate change response plan as per provincial growth strategies, integrated development plans, etc. The environmental affairs departments are responsible for the coordination of the provincial work, including local government and report through the Provincial Committee on Climate Change.
National sector departments	Implementation and reporting of performance on policies and measures for sectoral emission targets.
Intergovernmental Committee on Climate Change (IGCCC)	Consists of relevant national, provincial departments and local government – the structure to operationalise cooperative governance for climate change response. Provides the technical inputs to the sectoral emission targets setting and implementation.
National Committee on Climate Change (NCCC)	Consult with stakeholders from key sectors that impact on or are impacted by climate change – academia, business, NGOs, labour, government and civil society. Provides technical advice/inputs to the sectoral emission targets setting and implementation.
Provincial Committee on Climate Change	Coordinate and report the overall implementation of the provincial climate change response plans.

Ministers and Members of Executive Councils (MINMEC) and the Ministerial Technical Advisory Body (MINTECH)	Facilitate high level policies and measures coherence among the three spheres of government (national, provincial and local government) and guide sectoral emission targets.
Parliament and Portfolio Committees	<p>Parliament will oversee the development and implementation of the sectoral emission targets, through Portfolio Committees – there is an opportunity for the Portfolio of Environment, Forestry and Fisheries to engage with others Committees with the view to mainstream emission reduction in their respective policies and measures.</p> <p>Portfolio Committee may conduct public hearings on the implementation of the sectoral emission targets.</p>
The Inter-Ministerial Committee on Climate Change (IMCCC)	<p>Executive level committee of Ministers impacted or responsible for climate change response.</p> <p>IMCCC Ministers will be responsible for implementing the sectoral emission targets.</p> <p>Coordinate and align climate change response efforts, including statutory and regulatory needs for the sectoral emission targets.</p>
Cabinet	<p>Consisting of Ministers who performs various government functions – these include the IMCCC Ministers.</p> <p>Decision-making body with collective responsibility on the implementation of the climate change response, including the sectoral emission targets.</p> <p>Responsible for the day-to-day management of the government and response to sudden events.</p>
Presidential Climate Commission (PCC)	<p>To coordinate and oversee that climate change responses, including the sectoral emission targets are implemented in a Just manner.</p> <p>PCCCC provides advice to the President on implementation of climate change responses, including the sectoral emission targets.</p> <p>National sectoral emission targets departments/provincial/local governments do not account to the PCCCC but are guided by PCCCC recommendation(s).</p>

6. REPORTING, MONITORING AND EVALUATION OF THE SECTORAL EMISSION TARGETS

The Climate Change Bill proposes several review mechanisms including reporting to Cabinet and the Presidency. For example, the Minister of Environment, Forestry and Fisheries is required to collate, compile and synthesise of sectoral emission targets and report to Cabinet annually (with the support of the IMCCC). Sectoral emission targets must therefore be included in the government planning cycles and their implementation must be monitored and reported through the Medium-Term Strategic Framework and Outcome 10 processes (under Presidency – Department of Planning, Monitoring and Evaluation). As discussed in section 5, each line department responsible for sectoral emission targets be guided by customised reporting templates.

Environment management is a concurrent function between national and provincial governments. Respective provinces coordinate provincial mitigation responses across internal departments, including municipalities within the province. Provincial and local governments are required to develop implementation plans derived from policies and measures. The coordination of plans is to be consolidated through a structure such as the Provincial Committee on Climate Change.

The sectoral emission targets will be reviewed every five years or earlier, if there are major sector changes that have implications on the country's transition to low carbon economy. Keeping sectoral emission targets Framework as dynamic and flexible is important to ensure it keeps pace with domestic policy developments, research, development and innovation, and declining costs of emissions mitigation technologies. Notable here is a process being undertaken by the National Planning Commission (NPC) to develop a common vision for the country in 2050. This vision will be instrumental in driving harmonisation of government plans and policies and so it is important that the NPC process and vision takes into account the Paris goals.

7. WHAT ARE THE NEXT STEPS?

This section highlights the next steps – from the development of this Framework to implementation and reporting of the sectoral emission targets.

Activity	End Date	Responsible/accountable stakeholder
Solicit inputs for consideration into the Framework from the IGCCC members	30 November 2020	DEFF
Revision of the Framework to reflect on	15 January 2021	DEFF

inputs received from the IGCCC members		
Further consultations on the Framework with the IGCCC members, including presentation to the Working Group(s)	31 March 2021	DEFF
Zero-Order Draft Framework developed <ul style="list-style-type: none"> Solicit inputs from stakeholders, including through the Task Team established 	30 June 2021	DEFF
First-Order Draft Framework developed <ul style="list-style-type: none"> Revision of the zero order draft Framework based on inputs received from stakeholders Recommended by MINMEC for submission to Cabinet 	30 July 2021	DEFF
Framework submitted to Cabinet for approval	31 December 2021 2022	DEFF
Setting and allocation of sectoral emission targets using the Cabinet approved Framework	1 April 2022	DEFF
Allocated sectoral emissions targets tabled with Cabinet for approval for implementation	31 December 2022	DEFF SETs Departments All nine Provinces
Implementation of the sectoral emission targets commencement	1 January 2023	DEFF SETs Departments All nine Provinces
Periodic reporting, monitoring and evaluation <ul style="list-style-type: none"> Progress presented at the IGCCC and Provincial Committees quarterly Annual collation and presentation of the sectoral 	As soon as sectoral emission targets implementation start	DEFF SETs Departments All nine Provinces and their respective local governments Presidency – Department of Planning, Monitoring

<p>emission targets implementation to Cabinet</p> <ul style="list-style-type: none"> • Review the sectoral emission targets after five years 		and Evaluation
---	--	----------------

8. APPENDIX I: SOUTH AFRICAN LEDS IMPLEMENTATION PLAN

Table 6: The three phases of the just transition

Starting Right (start immediately and complete by end of 2020/21 financial year)	<ul style="list-style-type: none"> • Start the process of developing long term plans for each sector, to avoid lock-in to emissions intensive infrastructure and establish the basis for transformation at scale • Develop approaches for allocation of Sectoral Emissions Targets (SETs) and carbon budgets to high emitting entities • Develop Sector Jobs Resilience Plans (SJRP) to support the transition to the low carbon economy and climate resilient society in a Just manner • Identify the institutional, legislative, finance and other changes required to achieve the transformation • Develop an understanding of the relevant government decisions which need to be taken to achieve the long-term plans • Develop a monitoring plan
Turning the corner (start immediately, as appropriate, and complete by 2025)	<ul style="list-style-type: none"> • Develop and begin to implement detailed transformation plans for each sector, which is supported by the implementation of the SETs, carbon budgets and SJRPs • Develop investment pathways to support the transformation • Implement foundational changes to drive down the national trajectory • Implement the institutional changes to accelerate the rate of transformation and remove barriers
Massive roll-out (to 2050)	<ul style="list-style-type: none"> • Roll-out the implementation plans for each sector along with measures to support changes until they become the new reality • Refine strategies as required, to account for changes in technologies, society and markets

9. APPENDIX II: CRITERIA FOR PAMS TO BE INCLUDED TO INFORM SETS

Table 7: Scoring Matrix for assessing PAMs

Criterion	Scoring				
	1	2	3	4	5
Governance Framework	Is there a governance framework to facilitate implementation of PAM? No				Is there a governance framework to facilitate implementation of PAM? Yes
Needs driven and customised (Quantitative PAMs) (Qualitative PAMs)	The prospect of the proposed PAM in successfully reducing emissions far is low (0% chance)	Proposed PAM not impactful enough and would need further development in order for it to reduce emissions (up to 1% chance)	Moderate potential to contribute to emission reduction. (2 to 5% chance)	Substantial potential to contribute to emission reduction (6 to 10% chance)	Directly contribute to emission reduction (more than 10% of the sector emissions)
	No potential to address an important problem or a critical barrier to shift the paradigm for the benefit of emission reduction in the sector	Low potential to address an important problem or a critical barrier to shift the paradigm for the benefit of emission reduction in the sector	Moderate potential to address an important problem or a critical barrier to shift the paradigm for the benefit of emission reduction in the sector	High potential to address an important problem or a critical barrier to shift the paradigm for the benefit of emission reduction in the sector	Highly transformative, paradigm shifting PAM for the benefit of emission reduction in the sector
Climate change mitigation and adaptation co-benefits / on – carbon benefits	PAM to reduce greenhouse gas emissions demonstrated no adaptation co-benefits. PAM is unimportant	PAM to reduce greenhouse gas emissions demonstrated poor adaptation co-benefits. PAM is of little importance	PAM to reduce greenhouse gas emissions demonstrated co-benefits in one of the adaptation sector. PAM is moderately important.	PAM to reduce greenhouse gas emissions demonstrated co-benefits in two of the adaptation sectors. PAM is important.	PAM to reduce greenhouse gas emissions demonstrated co-benefits in more than three of the adaptation sectors. PAM is very important
Sustainable development goals	PAM has no potential to address the sustainable development goals.	PAM has low potential to address the sustainable development goals.	PAMs demonstrated potential to address one of the sustainable development goal.	PAMs demonstrated potential to address two of the sustainable development goals.	PAMs demonstrated potential to address all of the sustainable development goals

10. APPENDIX III: TREND ASSESSMENT TO INFORM THE SCORING AND PRIORITISATION MATRIX TO ASSESS THE PAMS IN RESPONSE TO THE SOUTH AFRICAN QEERTS FOR NON-AFOLU

Table 8: Extracted from the National GHG inventory report (2000 – 2015), trend assessment to inform the scoring and prioritisation Matrix to assess the PAMS in response to the South African QEERTs for Non- AFOLU sectors

SET	IPCC Category Code	IPCC Category	Emission estimate (Gg CO ₂ e)		Contribution to Trend	Policies and Measures
			2000	2015		
Electricity	1A1a	Electricity and heat production	185 027	224 009	0.836	<ul style="list-style-type: none"> • Integrated Resource Plan • Integrated Energy Planning • Draft Post-2015 National Energy Efficiency Strategy (electricity transmission losses) • Energy Efficiency Demand Side Management (Solar Water Heaters) • Carbon Capture and Storage
Industry	1A2	Manufacturing industries and construction	32 505	36 704	0.817	<ul style="list-style-type: none"> • Draft Post-2015 National Energy Efficiency Strategy • Carbon Tax • Carbon Budget • Section 37B • Section 12 L • Industrial Policy and Action Plan
Transport	1A3b	Road transport	32 623	46 676	0.482	<ul style="list-style-type: none"> • Carbon Tax • Draft Post-2015 National Energy Efficiency Strategy • Phasing Out of Inefficient Fossil Fuel Subsidies • New Vehicle Tax • South African Biofuels Regulatory Framework • Green Transport Strategy
	1A1b	Petrol Refining	4 043	3 388	0.891	Clean Fuel 2
Industry	1B3	Other Emissions from Energy	28 147	24 657	0.358	<ul style="list-style-type: none"> • Carbon Tax

		Production				<ul style="list-style-type: none"> Carbon tax
	1A4a	Commercial/Institutional	9 515	18 327	0.057	<ul style="list-style-type: none"> National Building Regulations and Building Standards Act National Green Building Policy
Waste	4A	solid waste disposal	7 814	15 756	0.591	<ul style="list-style-type: none"> National Waste Management Strategy

The trend assessment (i.e., emissions contributing the most to the trend between 2000 and 2015) for gross emissions indicated that the top five categories are Residential (CO₂ emissions), Other emissions from energy production (CO₂ emissions), Commercial/institutional (CO₂ emissions), Road transport (CO₂ emissions) and Manufacture of solid fuels and other energy industries (CO₂ emissions). The trend assessment on the net emissions indicates that Land converted to forest land (CO₂) and Land converted to grasslands (CO₂) moves to the second and fourth position. In the AFOLU sector, the main issue is to align policies with activities / measures identified through the National Terrestrial Carbon Sinks Assessment (NTCSA, 2015, 2020) and the Strategic Framework for the AFOLU sector (unpublished).

Table 9 - Extracted from the National GHG inventory report (2000 – 2015), trend assessment to inform the scoring and prioritisation Matrix to assess the PAMs in response to the South African QEERTs for AFOLU sectors

SET	IPCC Category code	IPCC Category	Emission estimate (Gg CO ₂ e)		Contribution to Trend	Policies and Measures
			2000	2015		
LULUCF	3B1b	Land converted to forest land – net CO ₂ (Afforestation)	-10 020	-24 620	0,284	<ul style="list-style-type: none"> National Reducing Emissions from Deforestation and Forest Degradation (REDD+) programme through the National Forest Act and the national veld and forest fire act Working for programmes Implementation of SPLUMA Afforestation project in Eastern Cape and KwaZulu Natal to afforesting 100,000 hectares of land in the Eastern Cape and KwaZulu-Natal to reduce GHG emissions (DAFF Strategic Plan 2015/2016 to 2019/2020)
LULUCF	3B3b	Land converted to grassland – Net CO ₂	7374	1247	0,420	<ul style="list-style-type: none"> Working for programmes SPLUMA

Agriculture	3A1a	Enteric fermentation – cattle	20 818	20 505	0,715	<ul style="list-style-type: none"> Landcare + EPWP CARA
Agriculture	3C4	Direct N2O emissions from managed soils	16 327	15 820	0,746	<ul style="list-style-type: none"> CSA – conservation agriculture CARA
LULUCF	3B5b	Land converted to settlement – Net CO2	2190	4486	0,851	<ul style="list-style-type: none"> SPLUMA
LULUCF	3B1a	Forest land remaining forest land – Net CO2	-13 536	-10 279	0,943	<ul style="list-style-type: none"> REDD+ SPLUMA
LULUCF	3B2a	Cropland remaining cropland	-1756	-1662	0,978	<ul style="list-style-type: none"> CARA SPLUMA Subdivision of Agricultural Land Act (SALA)

11. APPENDIX IV: EXAMPLES OF POLICIES AND MEASURES THAT COULD INFORM THE FIRST PHASE OF THE SECTORAL EMISSION TARGETS

Examples of policies and measures that could inform the first phase of the sectoral emission targets for the Department of Mineral Resources and Energy DMRE, as well as the Agriculture, Land Reform and Rural Development (DALRRD)

A. Policies and measures for DMRE sectoral emission targets

Policies and measures envisaged to reduce emission

These policies and measures that are currently being implemented or a group of policies that are being managed/implemented by DMRE and are contributing towards emission reduction:

1. Integrated Resource Plan

- 1.1 The total amount of megawatts electricity generated per year across all generation technologies
- 1.2 The amount of megawatts electricity generated per year per generation technology
 - 1.2.1 Coal
 - 1.2.2 Nuclear
 - 1.2.3 Hydro
 - 1.2.4 Pump Storage
 - 1.2.5 Solar PV
 - 1.2.6 Wind
 - 1.2.7 CSP
 - 1.2.8 Gas
 - 1.2.9 Biomass
 - 1.2.10 Embedded Generation
- 1.3 Did each generation technology achieve its full capacity as allocated in the IRP 2019?
 - 1.3.1 If YES, what were the enablers for each?
 - 1.3.2 If NO, the barriers include the following:
 - (i.) lack of finance, (ii) technological know-how or (iii) lack of capacity to implement?
- 1.4 What support would the DMRE require to fully implement the IRP planned capacity?
- 1.5 What are the implications of implementing each of the generation technologies in section 1.2 above on jobs? This is in terms of either jobs created or job lost.

1.6 What other socio-economic impacts would need to be considered as each of the generation technologies in section 1.2 above gets implemented?

1.7 What are the impacts of each of the generation technologies in section 1.2 above on the non-GHGs environmental sectors such as land, waste management, biodiversity, water and air pollution?

2. Solar Water Heaters Programme

2.1 The total number of solar water heaters to be installed over the period of the Programme

2.2 The total number of solar water heaters installed in that particular year.

2.3 Did the programme reach its annual targets? If YES, what were the enablers? If NO, what were the barriers?

2.4 Flowing from the question 2.3 above, were the barriers towards full realisation of the Programme targets for a particular period related to lack of finance, technological know-how or capacity to implement?

1.5 What kind of support would the DMRE require to fully implement the Programme?

1.6 What are the implications of the Programme implementation on jobs? This is in terms of either jobs created or job lost.

1.7 What other socio-economic impacts would need to be considered as the Programme gets implemented?

1.8 What are the impacts of the Programme on the non-GHGs environmental sectors such as land, waste management, biodiversity, water and air pollution?

3. National Energy Efficiency Strategy

3.1 Number of total gigawatt hours' energy saving target per year

3.2 Number of total gigawatt hours' energy saving achieved in a year

3.3 Number of gigawatt hours' energy saving achieved in a year per sector

3.4 Number of energy efficiency programmes that contributed to the gigawatt hours' energy saving referred to in sections 3.2 and 3.3 above

- Energy Efficiency Standards and Appliance Labelling project
- Energy Efficiency and Demand-side Management programme
- 12L tax incentive programme
- The National Cleaner Production Centre South Africa

3.5 Number of companies that employed energy efficiency management interventions in a year. Please categorize these companies as small, medium and large businesses.

- 3.6 Were the projected annual sector targets met? If YES, what were the enablers for each sector? If NO, what were the barriers for each sector?
- 3.7 Were the barriers towards full realisation of these targets in section 3.6 above related to lack of finance, technological know-how or capacity to implement?
- 3.8 What kind of support would the DMRE require to help sectors fully achieve the targets going forward?
- 3.9 The total amount of energy cost saved in a year as a result of energy efficiency interventions (in Rands). Please split this amount according to the sectors referred to in section 3.3.
- 3.10 What are the implications of the Programme on jobs? In terms of either jobs created or job lost.
- 3.11 What other socio-economic impacts would need to be considered as the implementation of this Programme?
- 3.12 What are the impacts of the Programme on the non-GHGs environmental sectors such as land, waste management, biodiversity, water and air pollution?

Policies that requires that enabling environment is established to that emission reduction is achieved in the next phase of the sectoral emission target

The implementation of these policies and measures would need to be accelerated (already in the public domain but not currently being implemented). These include the Biofuels Industrial Strategy of 2007 and Post-2015 National Energy Efficiency Strategy. For these to contribute to emission reduction in the next phase, work to promulgate the enablers must start now. Thus, the sectoral emission target for the first phase should take into consideration of the process involved (performance to be measured using process indicators).

1. Biofuels Industrial Strategy of 2007 (South African Biofuels Regulatory Framework)

- 1.1 Timeframe and plan for operationalisation of the South African Biofuels Regulatory Framework and National Biofuels Feedstock Protocol (BRF), including the amendment of the Mandatory Blending Regulations to mandate the regulated biofuel transfer price as the Basic Fuel Price and resolving all the operational aspects of blending biofuels with conventional petrol and diesel.
- 1.2 The timeframe for adjudication of the Biofuel Feedstock Supply Plan.
- 1.3 The timeframe for issuance of a determination of the blending infrastructure required.
- 1.4 The Biofuels Farmers Support and the Biofuels Manufacturers Support schemes, as well as the selection criteria for the biofuels manufacturing projects that will be eligible for the subsidy must also still be elaborated in much more detail. Without those, it will remain difficult for most project

developers to determine financial feasibility for their projects and the sector is likely to see a slow and uncertain start.

1.5 Envisaged finance, technology and capacity building support needed to fully implement the Strategy.

1.6 What are the possible implications of the Strategy on jobs? In terms of either jobs creation or job losses.

1.7 What other socio-economic impacts would need to be considered as the Strategy gets implemented?

1.8 What are the possible impacts of the Strategy on the non-GHGs environmental sectors such as land, waste management, biodiversity, water and air pollution?

2. Post-2015 National Energy Efficiency Strategy

2.1 Plan and timeframes for operationalisation of the Post-2015 National Energy Efficiency Strategy

2.2 Process towards promulgation of the Post-2015 National Energy Efficiency Strategy

2.3 Envisaged finance, technology and capacity building support needs for the implementation of the Strategy.

2.4 What are the possible implications of the Strategy on jobs? This is in terms of either jobs creation or job losses.

2.5 What other socio-economic impacts would need to be considered as the Strategy gets implemented?

2.6 What are the possible impacts of the Strategy on the non-GHGs environmental sectors such as land, waste management, biodiversity, water and air pollution?

Policies and measures likely to transform the sector

It should be expected that policies and measures such as Integrated Energy Plan (IEP), Phasing out of inefficient fossil fuel subsidies/incentives and Carbon Circular Economy would be the game changers in defining the long term transition to low carbon economy. There are policies and measures such as Carbon Capture Storage and Use, Clean Fuels 2, National Coal Strategy, Beneficiation Strategy for Minerals in South Africa where decisions need to be made - DMRE would be engaged with the view to establish certainty and mainstream low emission development.

The needs requirements to address projected negative socio-economic implications for implementation of these policies and measures should also be looked at.

12. POLICIES AND MEASURES FOR DALRRD SECTORAL EMISSION TARGETS

SET templates were generated for this sector yet. The SETs and templates will be co-generated with the Department.

The sectoral emission targets for the **AFOLU** sector will be based on set of activities that have been identified through the **National Terrestrial Carbon Sinks Assessment** (DEFF 2015) and further reinforced through the **Strategic Approach for the AFOLU sector** (DEFF 2020) which was undertaken with the view to collate information on the state of implementation of climate change mitigation actions to reduce GHG emissions from sources and to enhance mitigation efforts while also highlighting social, economic and environmental benefits.

Below is a list of principal climate change mitigation opportunities identified through the AFOLU strategy (DEFF, 2019) and have also been included as part of the NDC update that can be aligned with priorities for biodiversity conservation and strategic water source areas in the country. The GHG emission reduction figures are **indicative of overall potential** and are still been updated with the view to reduce uncertainty and quantify true GHG mitigation potential for the sector.

Table 10: Climate change mitigation activities identified through the National Terrestrial Carbon Sinks Assessment and reinforced through the AFOLU strategic approach and the NDC update process for the sector

Activity	Spatial extent (ha)*	Reduction per unit area per yr (tC)	Emission reduction per yr (tCO ₂ e)	Reduction in emissions over 20yr (tCO ₂ e)*
Forest and woodlands				
Urban tree planting			26 950	417 725
Restoration coastal / scarp forests	8 570	1,8	56 562	876 711
Restoration broadleaf woodland	300 000	1,1	1 210 000	18 755 000
Commercial small-grower afforestation E. Cape & KZN	100 000	1,5	550 000	2 200 000
Replanting temporary unplanted plantations	30 000	1,5	165 000	660 000
REDD+ (Reduce emissions from deforestation	Not known			

and forest degradation)

Sub-total: Forest and Woodland	438 570		1 981 562	22 491 711
Sub-tropical thicket				
Restoration of sub-tropical	500 000	1,2	2 200 000	34 100 000
REDD (Reducing deforestation / degradation)	Not known			
Sub-total: Sub-tropical thicket	500 000		2 200 000	34 100 000
Grassland				
Restoration - Erosion Mesic	270 000	0,7	693 000	10 741 500
Restoration - Erosion Dry	320 000	0,5	586 667	9 093 333
Restoration - Grasslands Mesic	600 000	0,5	1 100 000	17 050 000
Avoided degradation mesic	15 000	1,0	55 000	852 500
Restoration of agricultural land	80 000	0,7	205 333	3 182 667
Sub-total: Grassland	1 015 000		2 640 000	40 920 000
Cropland				
Application of biochar	700 000	0,3	641 667	9 945 833
Conservation Agriculture	3 453 557	0,3	3 798 913	75 978 254
Sub-total: Cropland	4 153 557		4 440 579	85 924 087
Feedlots and dairy				
Improved livestock efficiency			137 299	2 745 980
Improved feed quality			1 668	1 098 380
Sub-total: Feedlots and dairy	0		138 967	3 844 360
Bioenergy				
Biomass to energy			2 868 000	57 360 000
Anaerobic digestion			3 450 000	69 000 000
Sub-total: Bioenergy	0		6 318 000	126 360 000
TOTAL			17 719 108	313 640 158

There are many AFOLU policies that govern the use and management of land as key drivers of GHG emission in the sector and potential for GHG mitigation. Based on the complexity of the sector, two key policies were elected for phase 1 of sectoral emission targets allocation process, those that affect the land related activities: **SPLUMA** and those that affect agricultural activities: **CARA**. All other AFOLU

policies can be brought in to complement the implementation of activities in the AFOLU sector during later development of sectoral emission targets.

Some of the information that DFFE need to start collecting with the view to realise full mitigation potential in the sector is the following:

Category	Useful data
Biomass burning	Area of land burnt
	What land type is burnt, i.e. grassland, cropland, etc.
Conservation agriculture and soils	Area of land on which Conservation Agriculture (CA) is occurring
	What type of CA activities are taking place on that land i.e. no tillage, mulching, etc.
	Type of management occurring on the land (tillage, reduced tillage, agricultural inputs, etc.
	Soil type or soil carbon data at site
Land degradation and rehabilitation	Area of degraded land
	How degraded is the land?
	What type of land is the degraded land (i.e. is it grassland, cropland, forest, etc.)
	Area of land rehabilitated
Land use change	Area and GPS coordinates of land that has been converted from one type to another
	What was converted to what (grassland to urban area, mining or woodland)
	Above ground carbon stocks or yield of previous or current land use (if available)
Removal of trees	Area cleared or number of trees removed
	Tree species removed
	Above ground carbon stocks of area before/after clearing (if available)

Some of the **land management information** that we can collect to assist in the modelling process and also quantification of **PAMs include the following:**

Site details:	Name			
	Co-ordinates			
	<i>Tick appropriate block</i>			
	Vegetation type	Grassland		
		Cropland	Crop type	
			Commercial or subsistence	
		Thicket		
		Forest		
		Other		

Management	Level	Description	Moisture regime	
	<i>Tick appropriate box</i>			
Land use	Long-term cultivated	Represents area that has been continuously managed for >20yrs, to predominantly annual crops.	Dry	
			Moist	
	Perennial/Tree crop	Long term perennial tree crops.	Dry	
			Moist	
	Set aside (<20 yrs)	Represents temporary set aside of annual cropland (e.g. conservation reserves) or other idle cropland that has been revegetated with perennial grasses.	Dry	
			Moist	
Tillage	Full	Substantial soil disturbance with full inversion and/or frequent (within 1 year) tillage operations. At planting time, little (<30%) of the surface is covered by residues.	Dry	
			Moist	

	Reduced	Primary and/or secondary tillage but with reduced soil disturbance (usually shallow and without full soil inversion). Normally leaves surface with >30% coverage by residues at planting.		Dry	
				Moist	
	No-till	Direct seeding without primary tillage, with only minimal soil disturbance in the seeding zone. Herbicides are typically used for weed control.		Dry	
				Moist	
Inputs	Low	Low residue return occurs when there is removal of residues (via collection or burning), frequent bare-fallowing, production of crops yielding low residues (e.g. vegetables, tobacco, cotton), no mineral fertilization or N-fixing crops.		Dry	
				Moist	
	Medium	Representative for annual cropping with cereals where all crop residues are returned to the field. If residues are removed then supplemental organic matter (e.g. manure) is added. Also requires mineral fertilization or N-fixing crop in rotation.		Dry	
				Moist	
	High without manure	Represents significantly greater crop residue inputs over medium C input cropping systems due to additional practices, such as production of high residue yielding crops, use of green manures, cover crops, improved vegetated fallows, irrigation, frequent use of perennial grasses in annual crop rotations, but without manure applied.		Dry	
				Moist	

	High with manure	Represents significantly higher C input over medium C input cropping systems due to an additional practice of regular addition of animal manure.		Dry	
				Moist	