PRESIDENTIAL
CLIMATE COMMISSION
TOWARDS A JUST TRANSITION

Stakeholder Report: Energy Dialogue Series

A PRESIDENTIAL CLIMATE COMMISSION REPORT

July-November 2023

ABOUT THIS REPORT

This report presents a summary of the virtual energy dialogue series that was conducted by the Presidential Climate commission (PCC) over the period from July to November 2023. The presentations, reflections and discussions that took place during the virtual dialogues have informed this stakeholder report. Synthesis reports of each energy dialogue were also drafted and made available on the PCC website on each dialogue web page, this is outlined in the contents of this report.

In this report, the discussion of the energy dialogues and stakeholder perspectives have been captured under each topic, these inputs will form the basis of ongoing work on the mitigation pathways for the various sectors.

ABOUT THE PRESIDENTIAL CLIMATE COMMISSION

The Presidential Climate Commission (PCC) is an independent, statutory, multistakeholder body established by President Cyril Ramaphosa with the purpose off overseeing and facilitating a just and equitable transition towards a low-emissions and climate-resilient economy in South Africa. The Commission brings together government, business, labour, academia, youth, traditional leadership, and civil society.

In building this society, we need to ensure decent work for all, social inclusion, and the eradication of poverty. We also need to protect those most vulnerable to climate change, including women, children, people with disabilities, the poor and the unemployed, and protect workers' jobs and livelihoods.

The PCC facilitates dialogue between social partners on these issues—defining the type of society we want to achieve, and detailed pathways for how to get there.

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1 Introduction

The PCC hosted its second series of energy dialogues between July and November 2023, these energy dialogues were hosted as interactive webinars where experts shared knowledge and best practice and also engaged with the stakeholders via a facilitated discussion by a PCC commissioner. For this series, the PCC continued public discussions on affordable electricity access, energy mix and transition risks as we continue to plan for a just low carbon economy.

The topics for these dialogues were identified and prioritised based on requests from the initial energy dialogue series and the integrated consultations that took place during the first quarter of this year. The main objective of these dialogues is to capacitate and inform social partners on critical matters pertaining to the energy transition as a mechanism to facilitate improvements in the integration of social justice and equity in decision making.

This report follows the focused webinars and reports on the dialogues which are available on the PCC website, these are hyperlinked below:

- Energy Poverty,
- The future of the grid: Training webinar on power system basics
- The Future of the Grid: operating reliable power systems to achieve a clean energy transition
- Green Hydrogen
- The transition to New Energy Vehicles (NEVs)

This stakeholder report is a summative report in the energy dialogue series of the PCC.

2 Methodology

To obtain the information contained in the dialogue summary reports, including this report, the approach adopted included a synthesis of available research and policy documents, stakeholder views and discussions from the energy dialogue webinars and additional questions that were received from the dialogues. Each dialogue included a framing presentation by research and / or policy experts in the field, these were followed by reflections and inputs by the identified social partners of the PCC and stakeholders who were in attendance. The presentations and any other material from the dialogues were shared on the PCC website after each webinar.

The energy dialogues and discussions are ongoing, as the PCC seeks to incorporate the perspectives of social partners in all the PCC's work and in the expansion of our work in the broader energy landscape. A long-term exchange of views between social partners and the PCC is critical to reaching consensus and enabling implementation of a Just Transition. The schedule of energy dialogues together with the stakeholder attendance and media reach are shared in Table 1.

Table 1: Summary of PCC energy dialogue webinars that took place from July – November 2023

Date	Energy Dialogue	Total Zoom Attendance	Media engagement and links
20 July 2023	Energy Poverty	176	Business Day – 07 August 2023 "Free electricity programme fails to reach most poor households"
7 September 2023	Training Webinar – Power System Dynamics	243	None
13 September 2023	The future of the Grid: International knowledge exchange	297	Creamer Media's Engineering News – 14 September 2023 "Renewables hosting capacity of existing Western Cape grid could be doubled with 10% curtailment"
20 October 2023	Green Hydrogen	180	None
22 November 2023	The Transition to New Energy Vehicles	120	Business Day – 27 August 2023 "SA needs 750,000 electric cars on the road by 2030 to reach climate goals – EV demand is rising, but government failure to provide incentives restricts growth rate" IOL – 29 November 2023 "We need to steer the transition to green vehicles – for our own sake"

3 Procedural Justice

The PCCs Just Transition Framework advances three principles as underpinning a just transition towards an environmentally sustainable economy and society in South Africa: *distributive justice, restorative justice, and procedural justice.* Concerns around procedural justice were voiced in all the energy dialogues. This came through very strongly in the energy poverty and green hydrogen dialogues, stakeholders emphasised that capturing the voices of the most vulnerable/marginalised is essential in effecting procedural and distributive justice. Stakeholders recommended that the principle of procedural justice is embedded in planning and implementation as it requires that all actors have the relevant information to engage.

Following a request from stakeholders who attended the green hydrogen dialogue, in addition to the presentations, the PCC has uploaded the documents and other material that were referenced on the PCC website. Moreover, stakeholders, in particular civil society were concerned about inclusivity and the need for meaningful consultation approaches. Additionally, it was recommended that communities should not only be consulted but also included in some of the decisions pertaining to project inception, use of land and their role in development.

4 Energy Dialogue Series

4.1 Energy Poverty

The objective of the dialogue on Energy Poverty was to unpack the relationship of energy and development and its implications for communities and government, in particular local government. The recording and detailed narrative of this energy dialogue is available on the PCC website.

There was agreement in that access to reliable, safe and affordable electricity is critical for directly and indirectly addressing South Africa's triple challenge and ensuring a Just Transition to a low-carbon and climate resilient economy. Sustainable Development Goal (SDG) number 7 aims to "ensure access to affordable, reliable and sustainable modern energy for all", and encapsulates both the developmental and environmental challenges that many countries face.

During this dialogue and the PCCs, consultations on electricity planning, stakeholders noted that the current allocation of FBE of 50kwh to indigent households is insufficient and it can intensify developmental challenges such as malnutrition, the need for health care and increased propensity for adult violence. Therefore, there was considerable support for the increased allocation of FBE from 50KWh/month to 350KWh/month during this dialogue.

Despite the challenges currently being faced by policymakers and all spheres of government, there was acknowledgement of the several interventions that are currently underway to support households to alleviate poverty. However, there was consensus that access to sufficient, affordable, and reliable electricity would make the country's developmental goals much easier to achieve. The government faces several challenges relating to budget constraints and the number of households the current FBE allocation reaches. Additionally, to afford the recommended increase, government would have to raise revenue from a constrained tax base.

Some stakeholders suggested that well-structured electricity tariffs would support the facilitation of affordable energy access to those that need it. The current fixed cost pricing is being impacted by declining revenue as affluent households instal VRE technologies and reduce reliance on Eskom. However, cost reflective tariffs would make electricity less affordable for the poor, therefore simultaneous protection measures such as increased allocation of FBE would be required.

4.2 The Future of the Grid: operating reliable power systems to achieve a clean energy transition

In the first half of 2023, the PCC made recommendations on the country's electricity planning which noted the importance of electricity for development and that electricity planning should be anchored on least cost pathways. From the recommendations, "*the PCC expected a policy adjusted IRP to promote approximately 50 to 60 GW of variable renewable energy by 2030, supported by co-located storage, and between 3 and 5 GW of peaking support (for example gas, running at low utilisations*" This would be enhanced by focussing on transparent, spatial planning centred on grid access points. However, some stakeholders were critical of this view and that from a technical perspective, the grid would not be to handle such increased volumes of variable renewable energy (VRE) penetration under these timeframes. The reorganisation of electricity systems to integrate high levels of VRE and the associated investment in grid infrastructure are critical interventions in meeting climate and development goals and South Africa's just transition aspirations but are not without their challenges.

In order to understand these challenges and how they may be overcome, the PCC hosted an online public training webinar to introduce power system basics for a non-technical audience. This was followed by a two-day international dialogue, learning and knowledge exchange on the effective operation of high variable renewable energy power systems was facilitated by the University of Cape Town, in partnership with the PCC; and supported by the Australian High Commission in South Africa.

4.2.1 Training Webinar: Introduction to power systems concepts

This section is a summary of the context and key concepts that were discussed during the training webinar on introduction to power systems concepts. The recording and report which discusses the concepts and training webinar is available on the PCC website.

Table 2: Summary of the key concepts discussed during the training webinar

Topic	Context	Key Concepts Discussed
Introduction to power systems concepts and theory from a technical perspective.	The power system is a complex system made up of concepts and theories that need to be understood to gain a simple understanding of how power systems work and are operated	These included the power system as a complex system, power systems with and without variable renewable energy and power system frequency, stability, quality and reliability
Introduction to power systems planning in the real world.	Power system planning requires the technical capabilities of the power system to be coupled with the economics of power supply to assist in decision making across the different time horizons and the potential impact on system operations.	These include the generating capability and the cost of generation, system planning and decision-making timelines, dispatch in the short term, reserve types and uses and new services that may be procured by the system operator in future.

4.2.2 Knowledge Exchange: System operators and grid experts

The two-day international dialogue, learning and knowledge exchange on the effective operation of high variable renewable energy power systems took place on the 13th – 14th September 2023. In this section we provide a discussion summary of the knowledge exchange conference that took place during on the 13th of September 2023 and was broadcast on the PCC social media platforms.

The knowledge exchange brought together global system operators and grid experts to South Africa with the goal of synthesising lessons and insights from power systems that share similar characteristics with the South African system. The focus of the exchange was to deepen the understanding in South Africa of this crucial area; to support the building of networks and peer-to-peer learning relationships that are critical to drive implementation; and prepare stakeholders for the transition to a higher VRE power system in support of clean air, energy security and access, and climate goals.

The global decarbonisation agenda has led to carbon reduction and net zero commitments by many countries. These commitments include a phased approach to the integration of VRE over the periods 2030, 2040, 2045 and 2050 in some countries. This increase in variable sources of generation will result in many intensified or new hurdles for electricity system control globally. The following common challenges facing electricity system operation as a result of increased VRE penetration were mentioned:

- Generation forecasting becomes more complex and uncertain,
- System ramping requirements to enable intermittent electricity generation from variable renewable energy increase significantly,

- Energy balancing becomes more challenging as system stability and voltage management are more difficult to achieve,
- Sophisticated procedures are required to manage surplus supply from renewables during standard periods, including curtailment and other constraints, and
- High-speed shutdown requirements.

Experts and stakeholders who attended the knowledge exchange agreed that while there were challenges, overcoming these will require short- and long-term interventions that include:

- Network extension and strengthening along with the establishment of generation resources, this includes significant investment required for the extension and reinforcement of transmission infrastructure.
- Redefining technical requirements to accommodate the changing nature of electricity generation.
- Designing and implementing regulatory and market reforms that will support efficient planning and operations.
- Digitisation of operations and markets is a prerequisite.
- Grids of the future will require long-term storage solutions to address extended periods with minimal wind/solar production and will need renewable resources to provide essential grid services.

The technical report informed by the knowledge exchange will also be made available on the PCC website once finalised. However, the recording and detailed summary of the knowledge exchange engagement is available on the PCC website.

4.3 Green Hydrogen

Social partners of the PCC, in particular civil society have raised concerns regarding the need for awareness and information sharing on this emerging industry and the associated trade-offs. This dialogue was well attended, it is worth noting that there were a significant number of civil society representatives in attendance.

The green hydrogen dialogue took place in the wake of the South Africa Green Hydrogen Summit that took place in Cape Town and soon after the parliamentary adoption of the Green Hydrogen Commercialisation Strategy (GHCS). This is an indication that government is looking to pursue green hydrogen as an economic sector and is committed to the development of this sector. Equally important are the concerns raised by the stakeholders, in particular civil society on the role of green hydrogen, the consultation process, the worker implications and job creation potential and how justice is going to be embedded in the development of this sector.

In this dialogue there was indication of the progress that government is making and the departmental cross collaboration with green hydrogen, or what is now being called low emissions and / or renewable hydrogen. The overview of the governments pathway and milestones achieved towards just industrialisation and the integration of green development are shown in Figure 1.

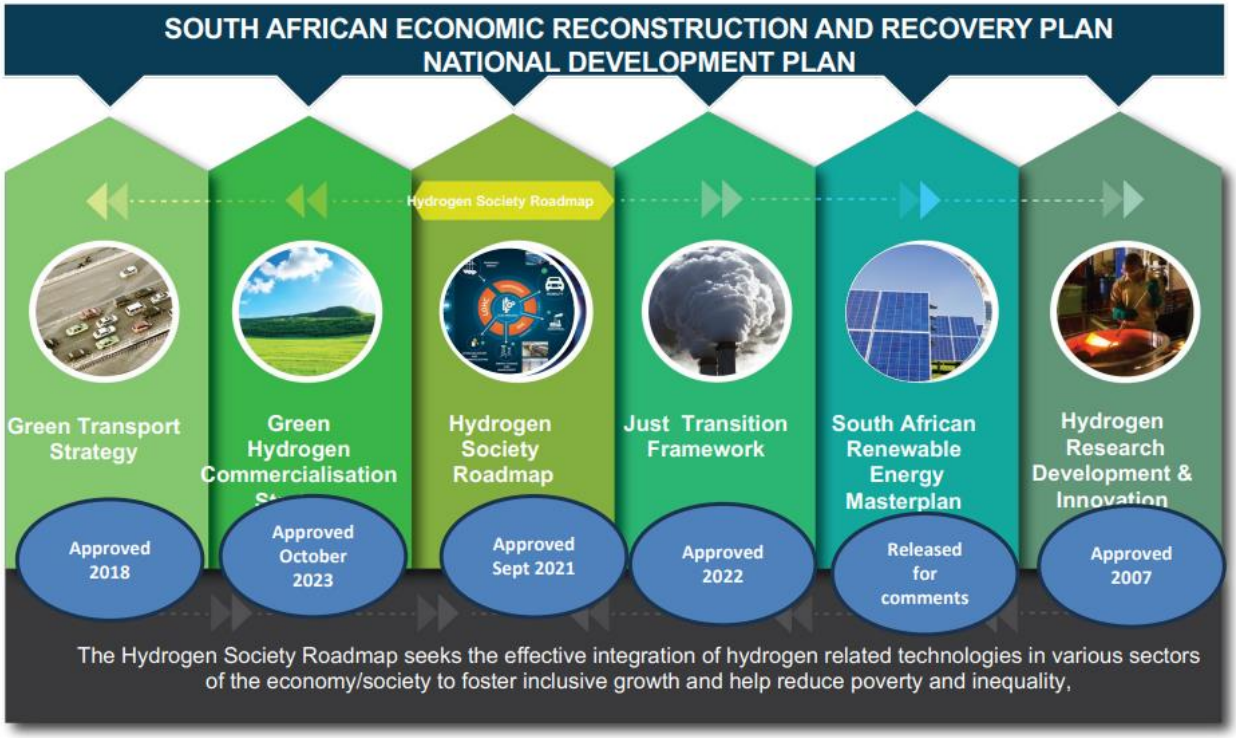

Figure 1: Overview of policies to support the green hydrogen economy[1]

The overall objectives of this industry were questioned and whether they address the principles of procedural, restorative and redistributive justice, especially the redress of individuals and disenfranchised communities. As such, there were strong recommendations from stakeholders for industrialisation strategies that respond to the unique conditions of South Africa and its locals to ensure that the principles of restorative justice and distributive justice and the redress of individuals and disenfranchised communities are realised. Accordingly, developers are tasked with delivering a project that is bankable, commercially viable and socially inclusive.

There were huge concerns regarding the safety of green hydrogen, its transportation and safety related to ammonia. Additionally, stakeholders were apprehensive of the water intensity of green hydrogen production and that South Africa is a water scarce country with some communities having limited or no access to potable water.

Stakeholders also made the following recommendations:

- Enhanced coordination within government, policy alignment and strong policy implementation, these are critical to enable the move towards a collaborative and complementary approach.
- With respect to community and broader capacity building, there was a strong call for social partners to be educated on green hydrogen and where it is best to apply it and any safety measures that will need to be undertaken.

Lastly, the recording and detailed summary report on the green hydrogen dialogue is available on the PCC website.

[1] Maserumule, R. 2023. "Hydrogen Economy". [Online] Available: https://www.climatecommission.org.za/events/green-hydrogen-dialogue [Accessed 09/11/2023]

4.4 Transition to NEVs

Many countries that are signatories to the Paris Agreement are looking at more ambitious ways to reduce carbon emissions within their borders and have set net-zero targets. These countries include many of South Africa's key export partners such as the European Union (EU), The United Kingdom, China, the USA, Japan, and South Korea. Most of the vehicle models assembled in South Africa, especially those with high production volumes, are exported. The EU is the country's largest trading region and has set targets for phasing out all new sales of ICE passenger vehicles by 2035.[2] The sector accounted for 4.9 % of the country's GDP (2.9 % manufacturing and 2 % retail) and held a 21.7 % share in the manufacturing sector.[3] If the automotive sector does not transition to the production of new energy vehicles (NEVs), this will have a major detrimental impact on South Africa's economy.

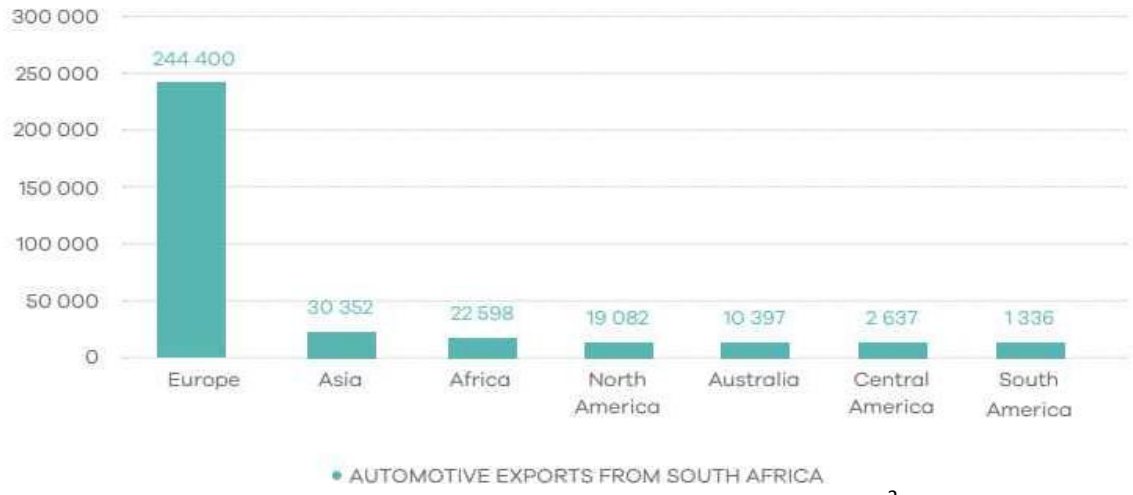

Figure 1: Automotive exports from South Africa October 2021 to September 2022[2]

The transport sector accounted for 13% of the country's 2020 emissions with 92% of these emissions being attributed to road transport. These emissions are predominantly from the combustion of petrol and diesel, hence the shift from internal combustion engine (ICE) vehicles to NEVs.

The successful rollout of NEVs requires a widespread sustainable charging network. There is still much to be done concerning the charging infrastructure network, however, local company Zero Carbon Charge (Pty) Ltd has started rolling out a national network of 120 off-grid sustainable charging stations that will operate independently from the grid and use solar PV to charge.[4] This infrastructure can also be used to support grid stabilisation and feedback electricity to the grid during peak hours. The widespread rollout of charging infrastructure on national roads will reduce consumer anxiety and increase confidence in the use of electric vehicles when traveling longer distances.

[2] GreenCape. 2023. *2023 Electric Vehicles Market Intelligence Report*. [Online] Available from: https://greencape.co.za/wp-content/uploads/2023/04/ELECTRIC_VEHICLES_MIR_2023_FINAL-DIGITAL_SINGLES.pdf [Accessed 2023-12-04]

[3] Lamprecht, S. 2023. *PCC NEV Dialogue: The Transition to NEVs - Unlocking the Market.* [Online] Available from: https://pccommissionflo.imgix.net/uploads/images/2.-20231122-NEVs-Unlocking-the-market_NAAMSA.pdf [Accessed: 2023-12-19]

[4] Venter, L. 2023. *PCC NEV Dialogue: The Transition to NEVs - Unlocking the Market.* [Online] Available from: https://pccommissionflo.imgix.net/uploads/images/2.-20231122-NEVs-Unlocking-the-market_NAAMSA.pdf [Accessed: 2023-12-18]

Stakeholders who attended the energy dialogue, including labour, were all in agreement regarding the need to transform this sector for socio-economic reasons that will have co-benefits for the decarbonisation of the transport sector. All stakeholders noted the urgency around the need to transition this sector, although, the rate and pace of transition remained unclear as the country still faces challenges of energy insecurity and electric vehicles would increase the energy demand on an already constrained grid that is not built for charging demand. Therefore, the current electricity supply constraints add to the challenges as EV charging using the grid will further burden the energy system.

Other concerns from stakeholders included skills development for NEV technology and opening and strengthening other export markets that have not introduced a ban on ICE vehicles, especially the African market. Most concerns expressed by stakeholders are political will and policy readiness. The stakeholders expressed that South Africa runs the risk of being left behind, losing its share in the global market, and missing the opportunity to expand. Government policies play a significant role in transitioning to NEVs and there are concerns about the pace of policy development and implementation. The policy direction and certainty for the adoption of NEV and EV infrastructure in South Africa is crucial in unlocking this market. The provision of broad policy incentives that include capital and operational costs is also necessary in South Africa.2[5] The DoT has a Green Transport Strategy which aims to give a policy direction for the Transport Just Transition.[6] The DTIC published an Automotive Green Paper as far back as 2021, further, the Electric Vehicles White Paper was approved by cabinet in November 2023.

The recording and detailed summary report on the green hydrogen dialogue is available on the PCC website.

5 Skills

Stakeholders emphasised the importance of planning for new skills sets, the reskilling and upskilling of some existing skills sets as this will be a key enabler mitigating job losses and sector resilience. The transition presents unique economic opportunities necessitating the need for South Africa to build a skills roadmap that addresses the Just Transition. There is a need to unpack the skills in extended and connected value chains in the renewable energy, green hydrogen, sustainable transportation, energy storage, smart technologies, and mining industries which has critical implications on current jobs and new occupations and skills for the energy and other productive sectors of the economy.

In 2021, DHET developed a Skills Strategy to ensure skills do not pose a constraint to the implementation of the Economic Reconstruction and Recovery Plan (ERRP).[7] The various SETA's, which in the main include CHIETA, MerSETA, and EWSETA already offer occupational qualifications that can be augmented to incorporate capabilities required for the Just Energy Transition. The TVET colleges offer programmes under the National Certificates (Vocational) (NC[V]) which can

[5] Mphethe, I.T., Mokhele, E.M. 2021. Status of electric vehicles in South Africa and their carbon mitigation potential. *Scientific Africa*, 14 (2021), 1-12

[6] Manale, P. 2023. *PCC NEV Dialogue: The Transition to NEVs – Transport Just Project New Energy Vehicles Dialogue.* [Online] Available from: https://www.climatecommission.org.za/events/energy-dialogue-new-energy-vehicles [Accessed: 2023-12-19]

[7] Chabane, S.S. 2023. *Skills for a Just Climate Transition Indaba – Approaches to Demand-Led Skills in South Africa*. [Online] Available from: https://pccommissionflo.imgix.net/uploads/images/JET-IP-Skills-Indaba-1-November-2023-Final87-Read-Only.pdf [Accessed: 2023-12-19]

help develop the necessary foundational knowledge and skills required to support the transition.[8] South Africa's Just Energy Transition Investment Plan (JET IP, 2022) for the initial period of five years (2023- 2027) identified key areas of investments for the transition including public transport, manufacturing, and charging infrastructure.6 Skills development for the current and future labour force is also a key investment area that has been accounted for in the Jet IP.

6 Conclusion

Through these participatory virtual dialogues, the PCC has reached several stakeholders which ranged from 120 – 280 and all stakeholders agreed about an inclusive future that will result in restorative and redistributive justice. Concerns of energy security came up in all the dialogues and how this will exacerbate the vulnerability of the poor who are dependent on the state for electricity provision, thus the call for increased allocation of FBE.

Despite opposing views, especially with regards to green hydrogen development, all stakeholders agreed on the need for programme of investment in skilling, reskilling and upskilling is required to equip labour force for future economy. Further, green industrialisation, decision making, and policies would need to take into account the key principles outlined in the Just Transition Framework and localisation.

This report captures the outcomes of the PCC Energy Dialogue series as the PCC seeks to facilitate social dialogue between social partners on matters pertaining to the transition and how we can realise the principles outline in the Just Transition Framework as the country and world transitions. Stakeholders engaged in conversations to define and shape the society we want to achieve together with the instruments required to achieve this. The PCC will continue to engage social partners on the green industrialisation and their role within these pathways.

[8] DSI, 2023. *Minister Blade Nzimande: National Union of Mineworkers Just Energy Transition Summit*. [Online] Available from: https://www.gov.za/news/speeches/minister-blade-nzimande-national-union-mineworks-just-energy-transition-summit-20-sep [Accessed 2023-12-19]