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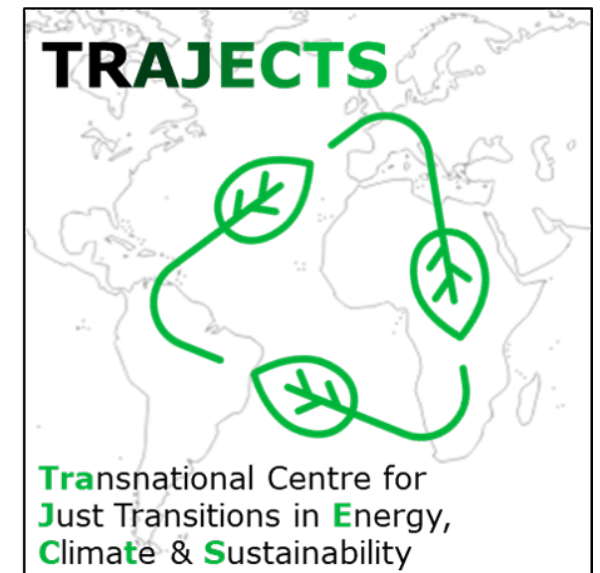
The Importance of Post-Closure Development of Coal Mines in the Context of the Just Transition

Towards Resilient Futures Community of Practice II
Use of Fibre-rich Biomass in the Remediation of
Degraded Mining Land
25 November 2021



ESRG

ENERGY SYSTEMS RESEARCH GROUP
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The Just Transition challenge

NPC agreed meaning of JT

- SA subscribes to the ILO guidelines on JT (worth a read!)
- The NPC Just Transition Vision covers mitigation and adaptation, across the energy, water and land use sectors to address implementation of JT (NPC, 2020).
- **Vision 2050 states:** “Through putting people, especially those living in poverty and the vulnerable at the forefront, South Africa will have achieved a *zero-carbon [net-zero carbon]* economy by 2050. We have built the resilience of our economy and our people through affordable, *decentralised, diversely-owned renewable* energy systems; conservation of our natural resources; equitable access of our water resources and sustainable, equitable and inclusive land-use for all, especially for the most vulnerable. The high value we place on healthy ecosystems, land, water and air, underpins our future, and ensures a better life for all who live in South Africa.” (NPC, 2019).

Mpumalanga's development challenges

- Unemployment levels are above the national average at 35.2% and 46.5% (StatsSA, Q2 2021).
- Youth unemployment rate is 58.7% in 2021 and **66.5% for young women**
- Mining-affected communities
- Air & water pollution, degraded land – “most polluted catchment” in SA; highest Sox and Nox
- Failed social and enviro closure processes in mining - >700 abandoned mines
- Competition for land, water from coal
- Household dependence on coal is high and informal economy
- In 2019, 47.3% of Mpumalanga population lived below the lower-bound poverty line of R810 per month (\$54/46 Euro/40 pounds/month)



Just Transition challenge: fossil fuel dependence AND broader development

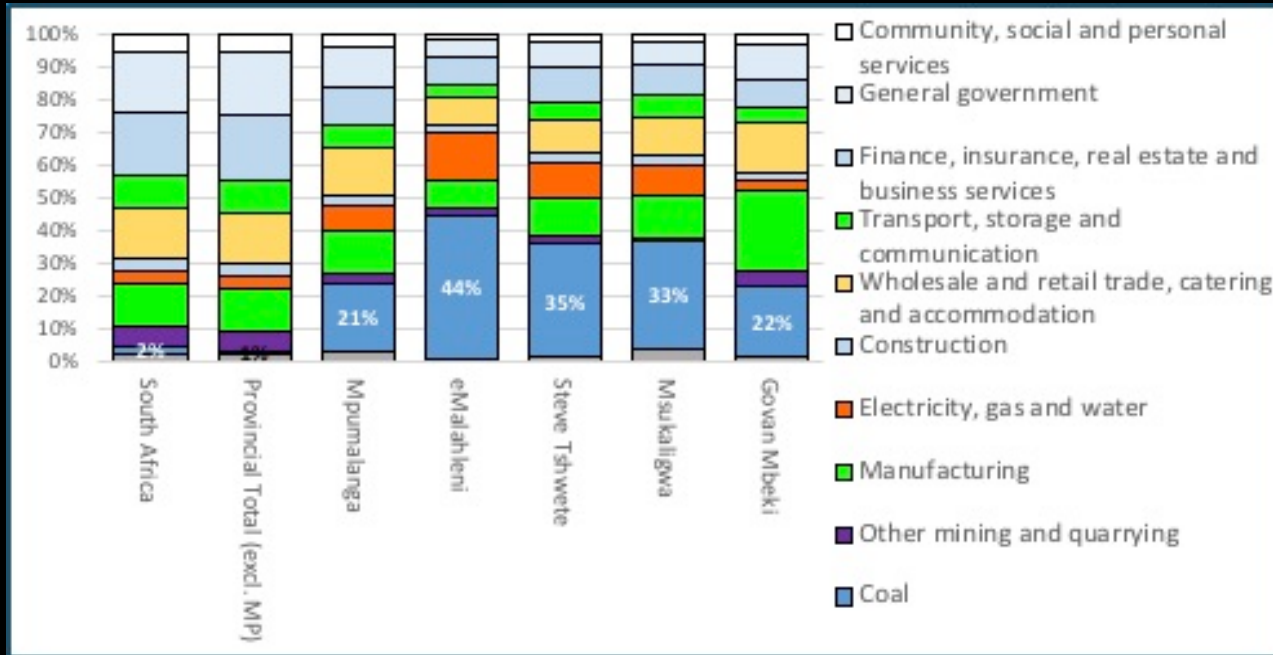
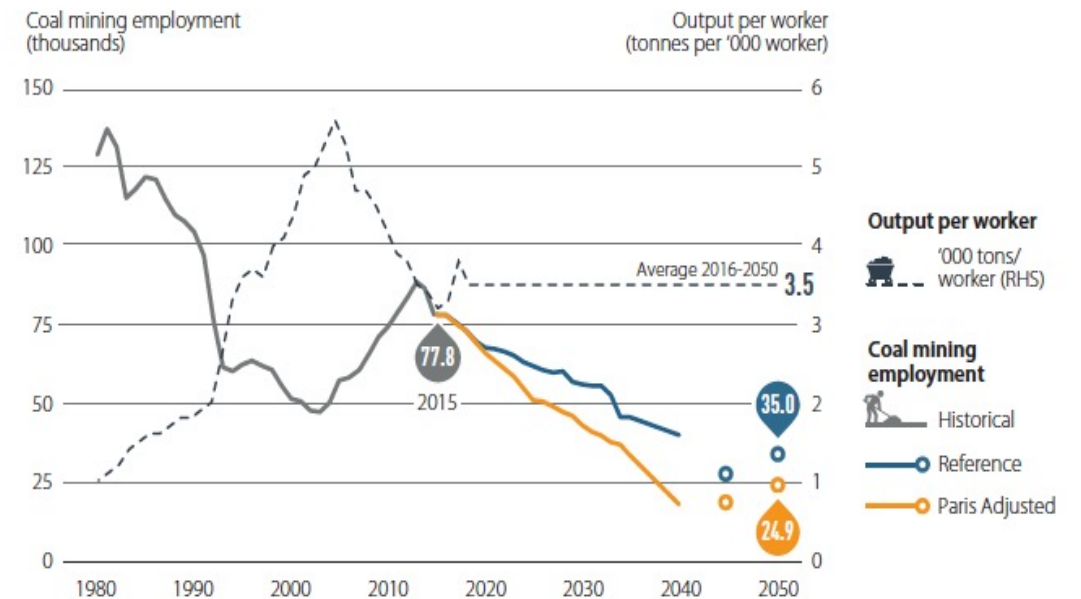


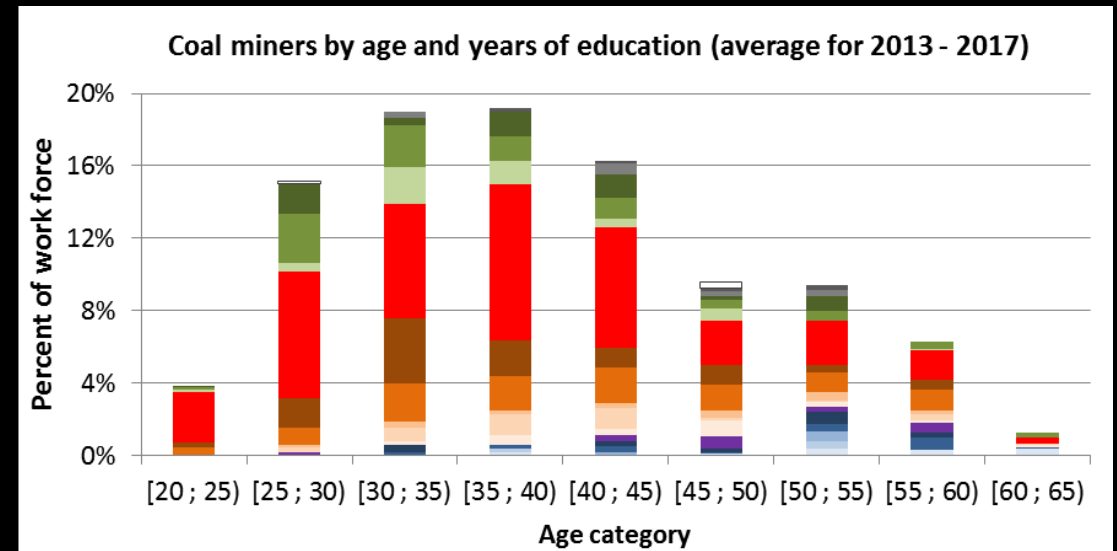
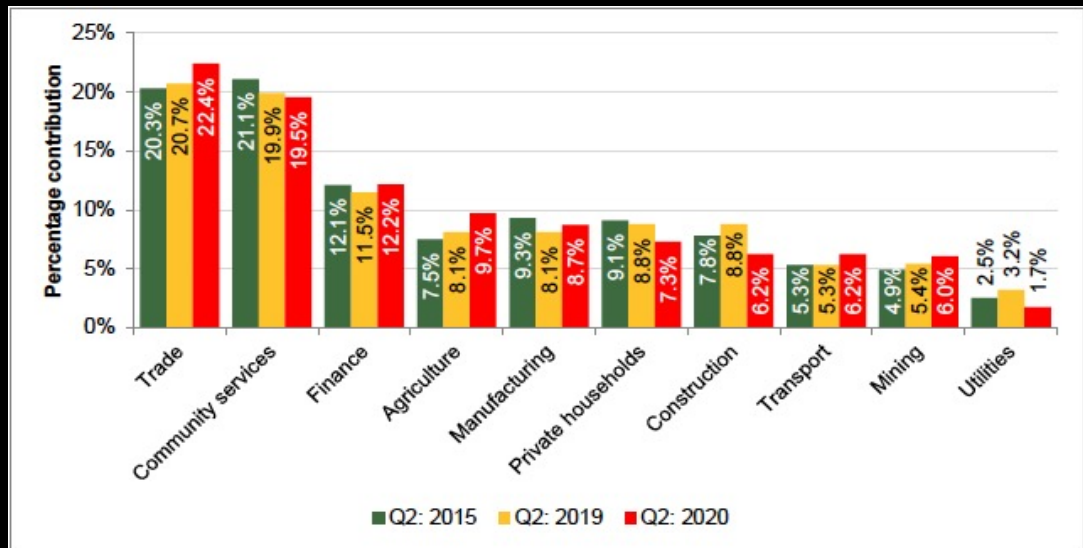
Figure 5: Historical (1970-2015) and projected (2016-2050) coal mining employment



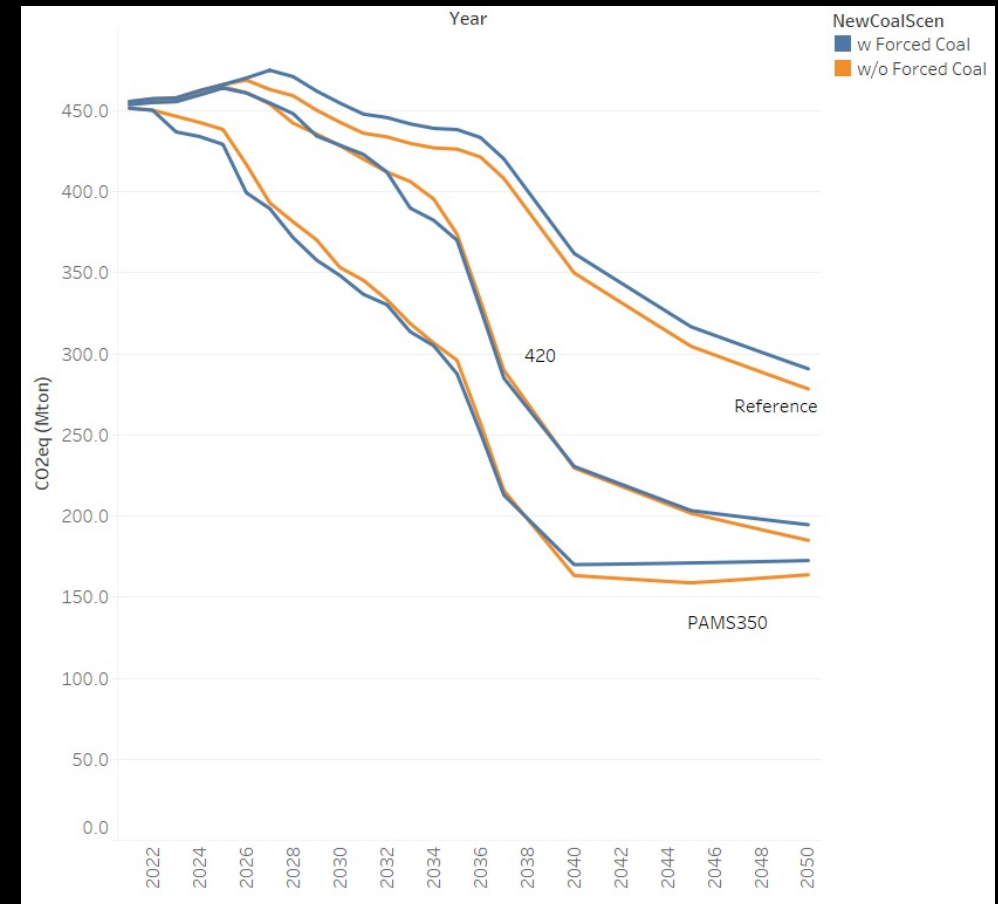
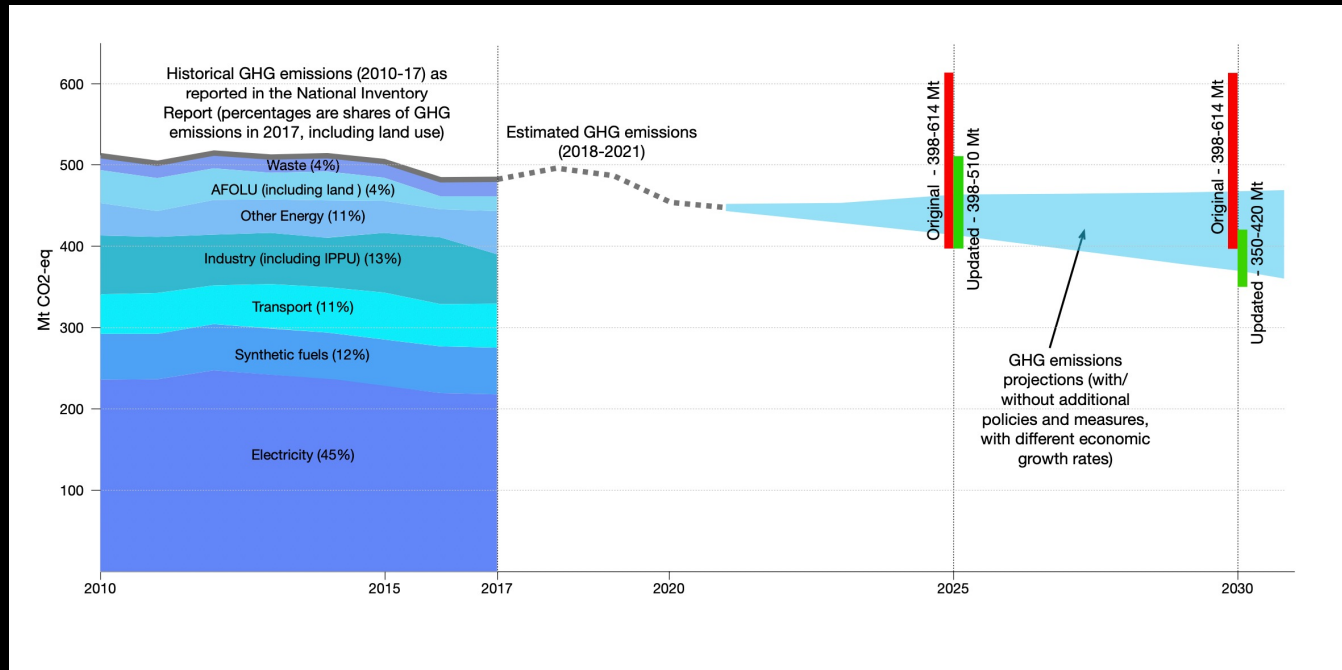
Employment vulnerability in regions – advancing analysis

- In eMalahleni, Steve Tshwete, Msukaligwa and Govan Mbeki, coal employment accounts for 26%, 17%, 14% and 11% respectively (TIPS, 2020)

- But age, skills, retirement, health all matter a lot for how many workers will actually lose their jobs between now and 2050 (Schers and Burton, forthcoming)



South Africa's updated NDC range



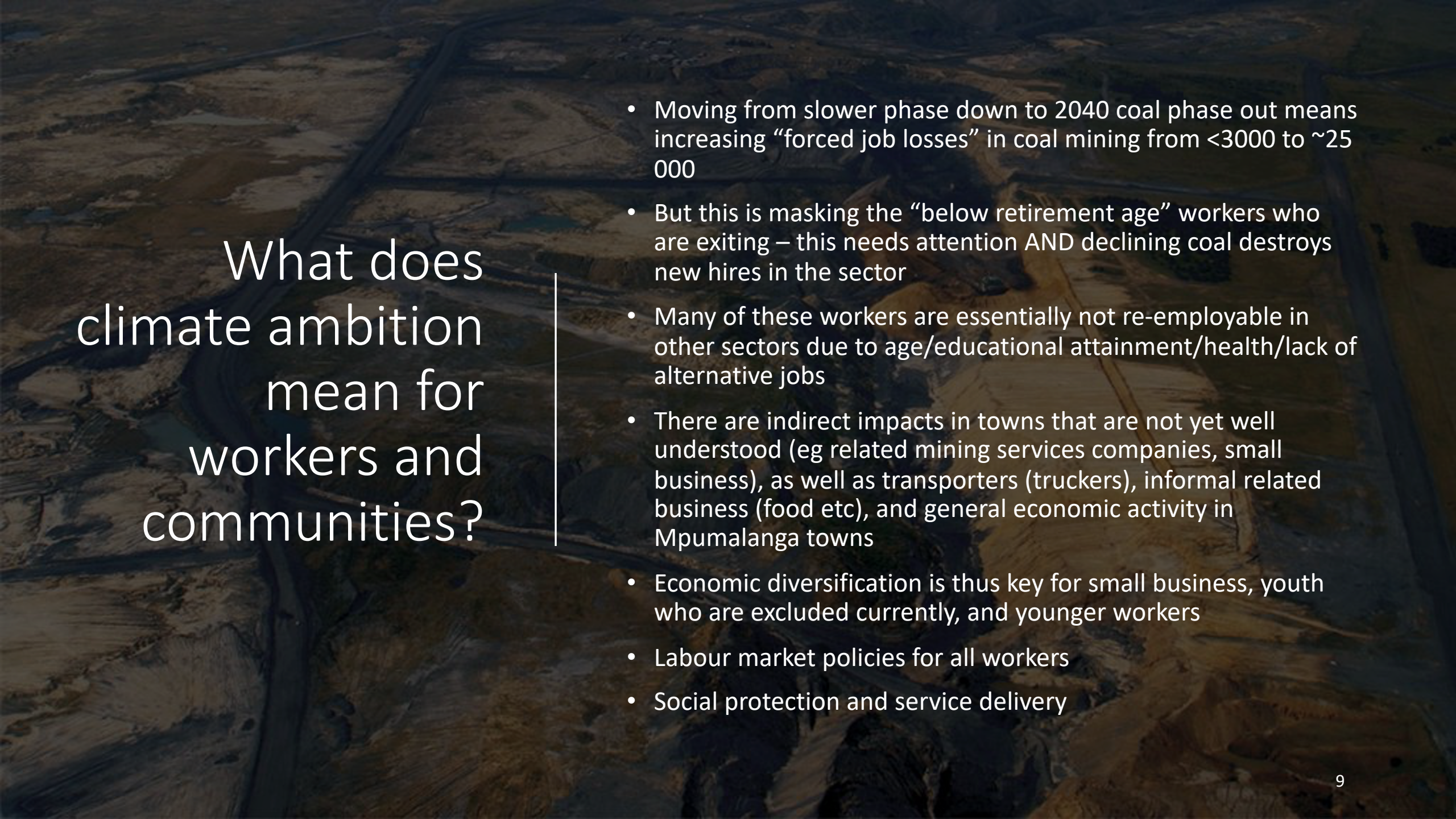
What do ambitious electricity pathways look like?

	IRP			Coal Off 2040			Climate Policy lowNDC		
	2030	2040	2050	2030	2040	2050	2030	2040	2050
Coal %share of electricity	52%	25%	16%	41%	0%	0%	37%	0%	0%
Coal installed capacity GW	33,8	19,6	11,4	30,3	0,0	0,0	28,25	0	0
Coal installed capacity %	41%	16%	7%	29%	0%	0%	31%	0%	0%
Wind and Solar share of elec %	30%	60%	72%	48%	85%	90%	45%	82%	87%
Wind and PV installed capacity GW	34,3	77,0	107,4	60,2	118,0	141,3	44,88	107,46	142,89
Wind and PV installed capacity %	42%	61%	70%	58%	76%	78%	49%	64%	66%
Greenhouse gas emissions powerl Mt CO2eq	149,9	82,1	61,4	119,6	6,4	10,0	111,21	15,93	19,61
GHG emissions national Mt CO2eq							353,24	163,29	163,73

CSIR/Meridian
and ESG, UCT

This goal requires at least 15GW more wind and solar above IRP and NEES, GTS implementation

3.5-5.5GW faster coal plant retirement, and lower operating hours: what does this mean for coal supply and mining revenues? Which mines? Severe data issues. Risk that it exacerbates existing rehab failures?

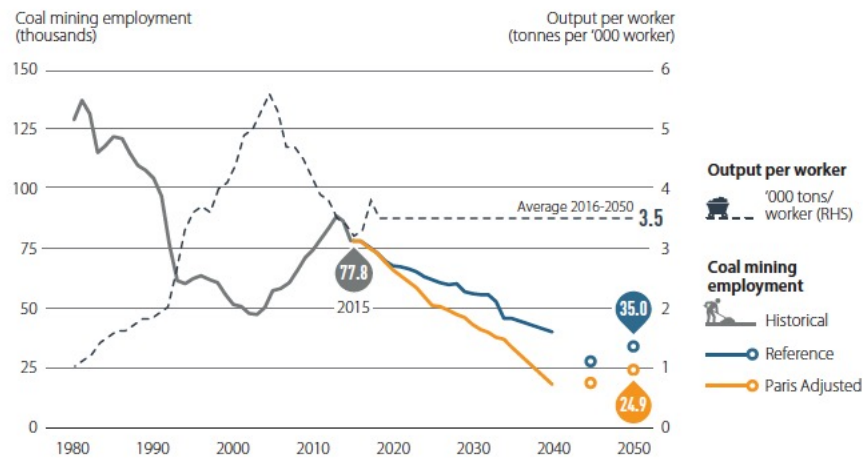


What does climate ambition mean for workers and communities?

- Moving from slower phase down to 2040 coal phase out means increasing “forced job losses” in coal mining from <3000 to ~25 000
- But this is masking the “below retirement age” workers who are exiting – this needs attention AND declining coal destroys new hires in the sector
- Many of these workers are essentially not re-employable in other sectors due to age/educational attainment/health/lack of alternative jobs
- There are indirect impacts in towns that are not yet well understood (eg related mining services companies, small business), as well as transporters (truckers), informal related business (food etc), and general economic activity in Mpumalanga towns
- Economic diversification is thus key for small business, youth who are excluded currently, and younger workers
- Labour market policies for all workers
- Social protection and service delivery

Reference case (still faster than IRP and includes some air pollution compliance...)

Figure 5: Historical (1970-2015) and projected (2016-2050) coal mining employment



[Burton, et al, 2019](#)

5 year period job changes in coal mining under a least cost future: lack of new hires
Implication – need local economic diversification and employment opportunities for young workers (and unemployed)

	2021 to 2025	2026 to 2030	2031 to 2035	2036 to 2040	2041 to 2045
Least cost energy future reference scenario					
Employment at the end of period	65 255	58 769	48 469	42 826	31 877
Retirements, at ...	987	1 145	1 398	1 267	1 988
Early retirements not BAU	-	-	-	-	-
"BAU" people leaving the workforce	6 242	7 192	7 712	9 814	10 176
Additional job losses	1 660	0	1 190	0	0
Composition of (non retiring) work force leavers :					
Total	7 902	7 192	8 902	9 814	10 176
Not reemployable	3 890	3 447	3 545	3 573	3 565
Low to very low chance of reemployment	2 083	2 084	3 195	3 918	4 293
Average (or quite some) difficulty in finding reemployment	1 242	1 651	1 871	2 320	2 317
Little to no problem to find a new job	687	11	292	3	1
check	0	0	0	0	0
New hires	0	1851	0	5438	1 216

Regular turnover of employment due to (we think) illness/workers exiting before retirement

With limited early coal retirement – impact hits new hires, not existing workforce

Very limited “forced job losses” due to coal retirement over the period

Schers & Burton, forthcoming

Job changes in coal mining under an Accelerated transition scenario

- A lack of new hires, and higher job losses in all re-employability categories: broader economic development and greater worker support.

25 000
forced job
losses
between
2020 and
2040 - and
early
retirement at
55yrs can
more than
halve job
losses

		2021 to 2025	2026 to 2030	2031 to 2035	2036 to 2040	2041 to 2045
	Accelerated Transition scenario					
	Employment at the end of period	56 968	45 600	35 884	18 763	20 668
	Retirements, at ...	987	1 000	1 120	974	1 048
	Early retirements not BAU	-	-	-	-	-
	"BAU" people leaving the workforce	6 242	6 279	6 179	7 547	5 350
	Additional job losses	9 947	4 090	2 417	8 600	0
	<u>Composition of (non retiring) work force leavers :</u>					
	Total	16 189	10 369	8 596	16 147	5 350
	Not reemployable	5 275	3 873	3 218	5 199	1 875
	Low to very low chance of reemployment	3 436	2 632	2 993	6 375	2 257
	Average (or quite some) difficulty in finding reemployment	3 408	2 401	1 839	3 983	1 218
	Little to no problem to find a new job	4 070	1 463	547	589	0
	<i>check</i>	0	0	0	0	0
	New hires	0	0	0	0	8 305

The Just Transition opportunity

Just transition planning

- Civil society processes with communities and workers
- Labour processes on climate and Just Transition
- Presidential Climate Commission - JT Framework
- National, provincial and municipal strategies -
- Emalahleni and Steve Tshwete and districts
- Eskom JET Office
- NBI and BUSA just transition to net zero process
- Mpumalanga Green Economy Cluster and strategy: agri, water, energy
- Impact Catalyst – supported by mines looking at post-mining economies



Just Energy Transition Partnership

Potentially historic deal - \$8.5bn offer from international donor group (US, UK, DE, FR, EU)

CIF ACT as core (\$200-500m)
Initial 3-5years

View to a longer-term partnership

Focused heavily on JT/social justice, power sector decarbonization, electric vehicles, and green hydrogen

The detailed plans are not yet in place – opportunity to shape what is demanded

Importance of mine closure related elements as part of financing packages - core to JT outcomes incl restorative justice, management of social consequences, livelihoods

What about access to modern energy services? Energy poverty more generally, coal use in hhs, etc?

Eskom Just Energy Transition Office

- Eskom goal is “net zero emissions by 2050 with an increase in sustainable jobs”
- Repurposing options at aged plants
- JET Transaction – climate finance deal to accelerate coal closures (~1Gt of CO2 reduction) and re-finance Eskom debt



Eskom's JET Financing Facility

Concept description:

To enable and accelerate the Just Energy Transition from coal to other forms of electricity generation, we propose:

- a **multi-tranche, multi-year facility**, funded by a **multi-lender syndicate**,
- The Facility will provide **concessional funding** to JET projects in the Republic of South Africa on a “**pay for performance**” basis.
- The funds will be advanced as **progress payments** for **different stages of various projects**



Thank you

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Foundational costs for Mpumalanga transition programme: Just Transition Fund via a Just Transition Transaction/climate finance deal

Where should this funding come from? How could this best be coordinated? Which stakeholders need to be involved?

- ***These costs of catalysing a comprehensive transition programme are small:***

- when compared to the costs associated with not-transitioning in a pro-active manner (Eskom bail outs, provincial social grants etc).
- when compared to international transition financing we believe could be generated under an Ambitious scenario.

- ***These costs are non-exhaustive, however, they give some indication of the costs of foundational components of a transition programme.***

~R 33 Mn to fund a JT coordinating body for 5-year initiating period

~? Funding for mining rehabilitation and new value chain pilot projects

R1.6 Bn to finance the establishment of a renewable energy SEZ in Mpumalanga and revitalise existing industrial parks, to attract a mixture of private as well as cooperative, community-led local industries.

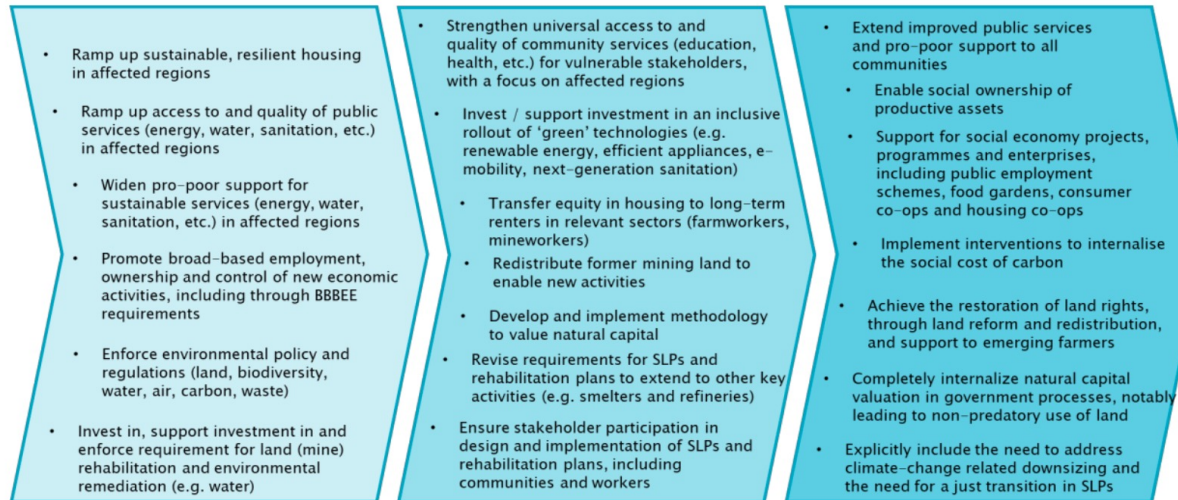
~R8.8 bn to finance worker support mechanisms over 20-year transition

R1.5 Bn to fund enabling infrastructure for skills development, land rehabilitation and other basic public infrastructure in 4 most affected municipalities.



Spectrum of ambition, types of justice, and pillars

Figure 7: Continuum of possible interventions to enact restorative justice



Source: Author

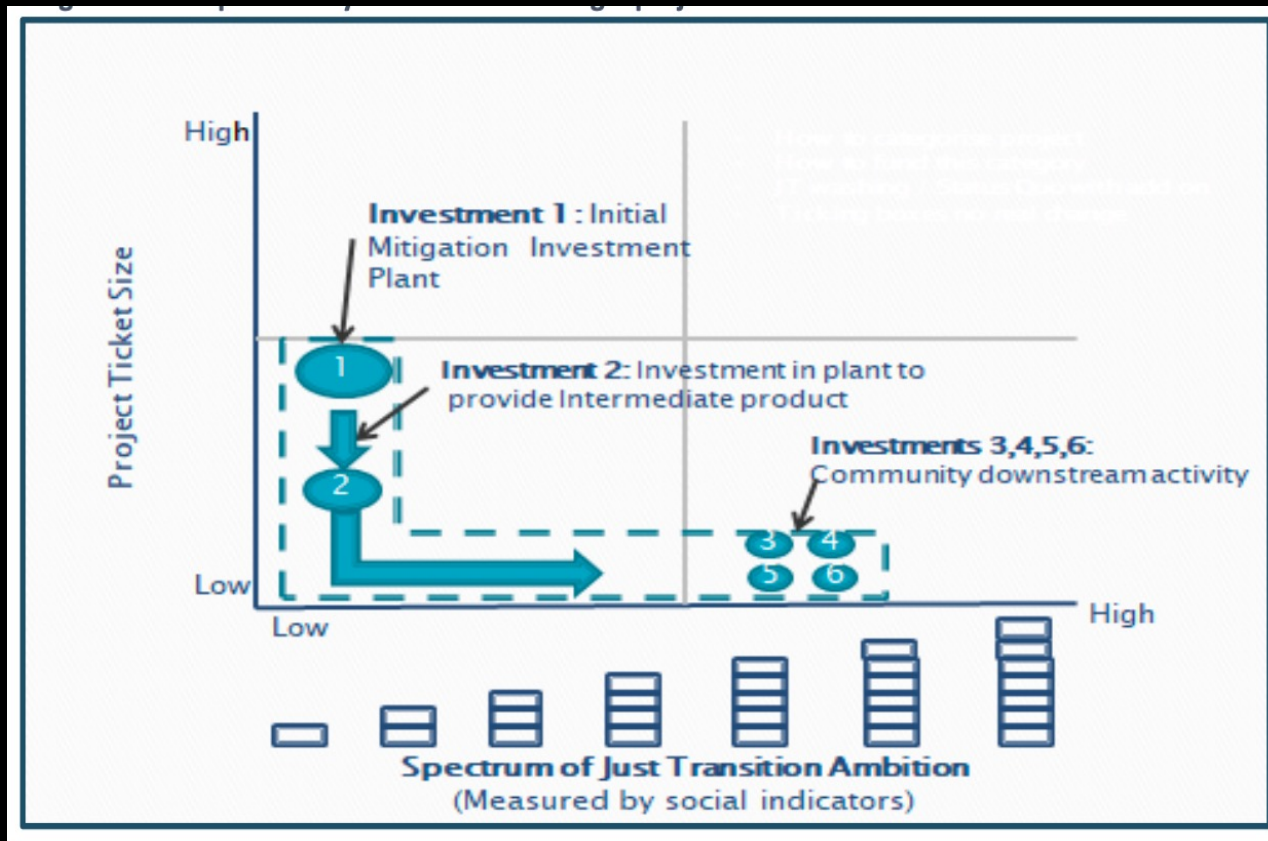
Montmasson-Clair, 2021

Figure 5: Continuum of possible industrial policy interventions to enact distributive justice



Source: Author

Financing Just Transition projects – TIPS JT Finance Roadmap



- Assessing real proposed projects for their Just Transition ambition
- Size of investments
- Risk
- Just transition benefits
- Interconnectedness
- Packages needed to unlock the downstream options
- Assessing whether finance sector/ecosystem can respond