Energy Mix choices and the protection of workers' interests in South Africa

By Pulane Mafoea Nkalai

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Setting the scene

- South Africa energy crisis and the introduction IRP 2010-30.
- The plan was also a response to the power shortages and load shedding.
- The IRP was updated in 2019, it recommends diversifying energy mix, and broadening electricity supply technologies
- The proposed energy mix is meant to increase energy generation significantly
- In addition, due to climate change, IRP supports a move towards a lower carbon future and underpinned by issues of equity and justice.

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2. Research Background

- Moving to a low carbon economy will change the structure of the economy and impact on the working class
- The NUM as a union organizing in both the coal and energy sector, recognize that their members and their communities will be affected.
- And so, NUM, mandated (SATRI) in collaboration with Friedrich Ebert Stiftung South Africa, to undertake research on how the energy mix will be affect workers
- Also, the union had previously taken a position against nuclear energy inclusion in the energy mix, however, that decision is now being reviewed
- The research intended to generate an informed position for NUM on different forms/ sources of energy production in South Africa.

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Objectives of the research

- To document the nature of the jobs created by different energy sources
- To identify specific skills requirements for each energy source based on empirical evidence
- To identify any training programmes implemented that may allow job seekers to enter into different energy sector
- To establish the extent in which South Africa is ready for the transition to renewable energy given the implications of such a move on employment and community disruption

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Research Methodology

1. **Phase one**

1.1 Energy mix symposium for NUM Leaders, members and various interest groups was organized.

The symposium aimed to seek views of workers on the energy mix .

The symposium raised the following questions:

- So how do we transition the workforce, providing well-paying, sustained employment for workers in the coal sector?
- How do we help communities historically dependent on the coal energy industry to sustain their livelihoods
- Responses prompted evidence-based research.

Phase two- Field Visits

2.1.Focus group discussions (communities)
2.2 in-depth interviews (employees, managers, owners)

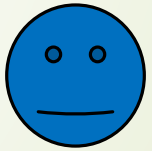
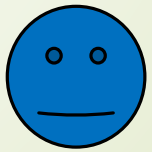
Nuclear

- Koeberg
- NIASA- Nuclear Association of SA
- NECSA-SA Nuclear Energy Corporation

Renewables

- Khi Solar 1 Plant;
- Hopefield Wind Plant;
- Enel Green Power
- SA Renewable Energy Technology Centre (SARETEC);
- Gestamp Renewable Industries (GRI).

Research Findings

	Nuclear	Renewables
Permanent Job Creation		
Skills shortages		
Transferable Skills set		
Economic opportunities		

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Findings –Job creation

- Most jobs were reported during **building, construction and installation** in both the nuclear and renewables
- Less jobs in **operation and maintenance**, in both nuclear and Renewable energy
- Most Renewable jobs were **temporary** and had little to do with energy production
- Job years or Jobs - **Multiple counting of jobs** due to the job years

Skills shortages

- there was huge gap in terms of what the **industry requires and what the labour** market offers.
- Operation and maintenance required high skilled jobs
- No evidence that people who lost jobs in coal could be absorbed in the renewable or nuclear industry

Skills requirements

	Equipment Manufacturing and Distribution	Project Development	Construction and Installation	Operation and Maintenance
Renewable	• R & D engineers (computer, electrical, environmental, mechanical) • Software engineers • Modellers (prototype testing) • Manufacturing technicians	• Project Designers (engineers) • Architects • Atmospheric scientists and meteorologists • Resource assessment specialists and site evaluators	• Engineers (Civil, mechanical, electrical) • **Construction labourers** • Commissioning engineer (electrical)	• Plant managers • Measure and control engineers • **HVAC technicians**
Nuclear	• Artisan/craftsman • Modeller • Nuclear fuel specialist	• Managers • Scientists • Instructors • Regulation and licensing designers	• Technician • **Construction labourers** • Radiator and accelerator – based applications • Process heat applications specialists	• Engineers • Planners • Security • technicians • Radioactive waste management • Supporting infrastructure specialist

Transferable skills

- Evidence of transferable skill sets needed in the renewable as compared to nuclear
- Such as mechanical and electrical knowledge, technical field experience(safety)
- However, low-skilled workers were unlikely to be absorbed in these sectors

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Economic Opportunities

- Nuclear industry has made efforts to promote local industrialization and economic clustering of nuclear manufacturing in South Africa
- With renewables, investments and manufacturing companies created were mostly short term and unsustainable, and companies did not grow to become nationally and globally competitive renewable energy equipment manufacturers
- Renewable energy can provide major opportunities in Equipment manufacture and distribution Businesses.

Conclusions

- The majority of job creation in renewable and nuclear power generation were within the high-skilled labour group unlike the coal sector
- Location of either new nuclear or renewable power plants must ensure that job opportunities are created where employment in the coal industry is lost
- training programs alone will not suffice, also create opportunities of employment

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Recommendations

- Transitioning to green economy must also translate into opportunities for the localization of production and manufacturing.
- For Renewable energy sources to produce employment, favourable conditions must be present.
  - Promoting local owned renewables;
  - Re-skilling and training for job creation;
  - and Prioritizing community participation and education.

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Thank you