



Report: Team Europe South Africa Climate Action Coffees - Session 2

CSIR coffee: Investigating viable solutions for repurposing coal power stations/coal mines

Date: 25 March 2021

Time: 09:40am to 10:40am (SAST)



Presenters:

- Dr Clinton Carter-Brown, Council for Scientific and Industrial Research (CSIR)
- Wido Schnabel, the chairman of the board of the South African Solar Photo-voltaic Industry Association (SAPVIA)
- Ruan Fourie, Energy economist and project lead (CSIR: Energy Centre)
- Njabulo Siyakatshana, Research Group leader (CSIR: Holistic Climate Change)
- Tord Johnston, Wärtsilä, Finland

Facilitator: Gail Cameron, Flow Communications

A total of 43 participants joined the call including:

- EU and Member States Counsellors, HQ colleagues, working together under Team Europe RSA approach
- Members of the South African Wind Energy Association (Sawea)
- Representatives from National Treasury
- Representatives from the Department of Forestry, Fisheries and the Environment (DFFE, formerly DEFF)

Topics covered:

Why EU Climate Action Coffees?

The purpose of the “Climate Action Coffees” sessions are to build bridges between organisations implementing climate action initiatives in South Africa and their Team Europe counterparts in South Africa and Europe. The sessions will help the EU and Member States team get a sense of the work being done, and understand how they can better assist.

Introduction

The [presentation](#) by CSIR was led by Ruan Fourie and Njabulo Siyakatshana with introductions from Dr Clinton Carter-Brown and Wido Schnabel.

Dr Clinton Carter-Brown provided a broad overview of the topic to be covered, focusing on unpacking all of the details and nuances of the aspects that we need to seriously look at for a just energy transition in the country. We have been building capacity as a country for the past three years and are ready to undertake this work. The goal is to generate solutions that translate into tangible outcomes and ultimately improve quality of lives.

Wido Schnabel touched on the opportunities for solar energy in South Africa. Renewable energy is increasingly becoming more cost-effective than gas and has a high magnitude of power capacity. Furthermore, there are opportunities to use solar in relation to the coal region transformation project.

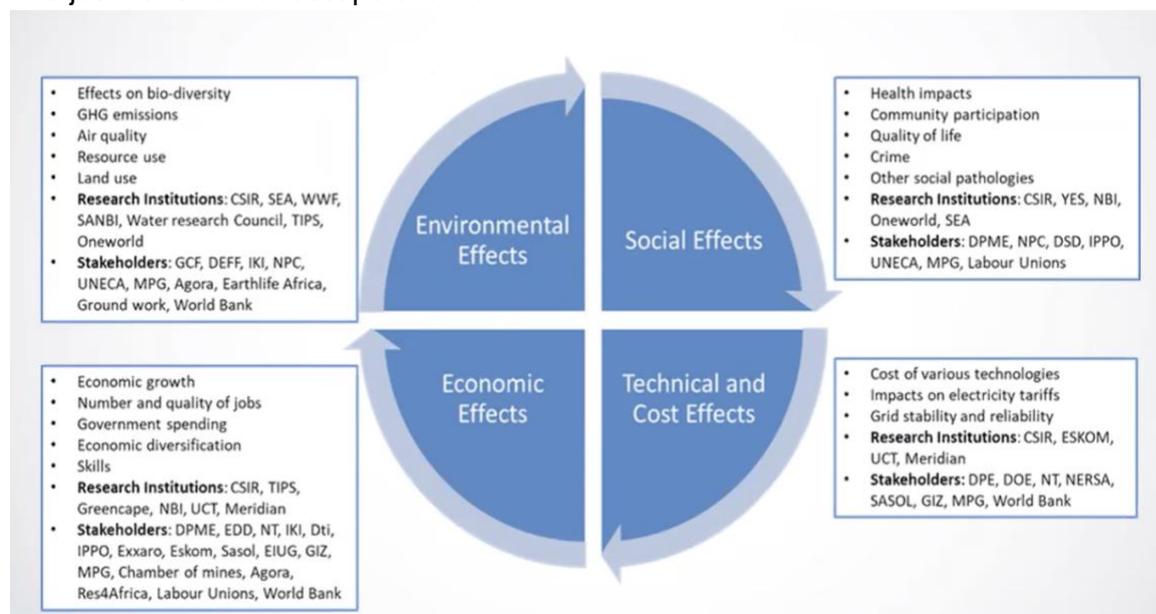
Understanding the viability of various regional economic diversification options with a focus on the coal value chain

The CSIR project is all about investigating viable solutions for the just transition in the coal plant and mining space.

South Africa is still dependent on fossil fuel-based technologies, mostly through coal and oil (77% and 11% respectively). Renewables make up 9% currently. The future of energy consumption in the electricity sector, however, will be dominated by solar, wind, natural gas and biofuels power.

How South Africa will move from fossil fuels technologies to renewable technologies is what relates to the “just transition”: ensuring that the change from one to the other is done in a just and fair manner, and ensuring that no one is left behind, keeping to government objectives of alleviating poverty, inequality and unemployment.

The just transition landscape overview:



As the transition unfolds, work in more areas will need to be done.

The scale of the challenge in Mpumalanga

In the integrated resource plan, the majority of coal power stations to be decommissioned in the next 10 years are in Mpumalanga. South Africa needs to plan for the economic losses to be suffered by that area. Owing to the scale of these losses, we need to investigate a broad range of options to ensure that the transition is just. In the Nkangala District Municipality specifically, four power stations are being decommissioned between 2021 and 2029. The CSIR foresees 46 219 job losses in the coal sector as a result. Good solutions to this challenge will ensure that this impact on jobs is less severe.

Overview of CSIR project supported by EU and Germany Ministry for Environment under SPIPA:

Detailed multi-criteria decision analysis (MCDA) has been conducted into various repurposing options based on the experiences of EU partners and local solutions researched and proposed in recent months.

This will be broken down into five key work packages, including:

- Research and mapping of all current research in progress in order to complement each other and work together to find solutions
- Data collection and screening of solutions, to ensure they are viable in a South African context
- Profiling regional linkages, specifically in Mpumalanga, between coal value chain and other sectors
- Development of MCDA framework
- Analysis and assessment of adequacy of solutions for the regions

It's important that there is an increase in stakeholder engagement, locally and with European partners. This will create a transparent and robust framework. This will also assist with the assessment of options as well as identifying the key solutions that can assist in mitigating losses in South African coal regions.

Research, government and industry partners, and union representatives are crucial in this process. They should all be able to add input and insights into the process and solutions.

Global perspective on coal power station repurposing

Tord Johnsson, from Wärtsilä in Finland, works in East and Southern regions of Africa and a key country in the region is South Africa. Globally, the demand for renewable energy is growing rapidly and there has been a huge investment to meet the renewable energy increase. Australia is a good example of this work done elsewhere in the world. A 500MW power station started to have efficiency and reliability problems, increasing maintenance costs. With the influx of renewables, the market rules changed and trading dropped from 30 minutes to 5 minutes. This is happening globally, as more renewable options enter the

system. The power station introduced 200MW of gas and 1GW of battery storage to cope with the system requirements.

In South Africa, renewables need to be able to compete with gas from a cost perspective. Hybrid sites to meet reliability requirements, with battery storage and engines are current options. The batteries and engines would only run for a few hours per year.

In Finland, a coal power plant has been converted into a smart technology hub – a place where investors, public entities, suppliers and academia work together to ensure we can benefit from one another. Using mixed competencies, Finland has been able to create seed funding and investment in small startups to commercially test new technology. For example, capturing CO₂ from air to produce hydrogen and biomethane to create methane used in ships between Finland and Sweden.

Looking into the future, it is likely that renewable technologies will create more jobs than coal plants and mines.

Wärtsilä will continue to invest and support the just transition in South Africa, as well as supply chain development to meet local development requirements.

Ariane Labat from the EU mentioned two Poland case studies available on the EU coal transition platform:

https://ec.europa.eu/energy/sites/default/files/documents/information_platform_for_post-industrial_and_degraded_areas_in_silesia_opi-tpp_-_platform_for_coal_regions_in_transition.pdf

And more case studies / toolkits from EU Coal regions:

https://ec.europa.eu/energy/topics/oil-gas-and-coal/EU-coal-regions/resources_categories_en?redir=1

Q&A

Carl Bernadac Agence Francaise de Developpement raised a question regarding the mapping of research and researchers to ensure that there is coordination and communication between stakeholders, eg AFD, Greencape, etc. Ruan responded that this will definitely be done as it's crucial for a successful project.

Carl also raised an issue that the skills analysis documentation is outdated and incomplete, for both supply and demand. Ruan said that this too will need to be updated and working together is crucial in getting everything updated.

Carl's last point was that stakeholder engagement is key, but wondered how to get buy-in from local governments with limited human resources and time? How do we efficiently mobilise resources? Ruan responded that part of the plan is for provincial government to be kept in the loop throughout the process. The solutions will also need to be simple to implement in order to be a success.

Next events

GIZ-ILO-DFFE green jobs dialogues will look at the various dimensions of a green recovery and job creation for youth in South Africa, such as:

- Thursday 15 April 14:00: Green jobs for a better future
- Thursday 29 April 14:00: Building skills for green jobs
- Thursday 13 May 14:00: Greening jobs in selected sectors
- Thursday 27 May 14:00: Co-creating solutions for green jobs (by invitation)
- Thursday 10 June 14:00: Engaging with high-level decision-makers

EU Coal regions in transition events:

https://ec.europa.eu/energy/topics/oil-gas-and-coal/EU-coal-regions/events-and-news_en

Should you wish to engage further on this topic, please contact Ruan Fourie at RFourie@csir.co.za