

Industrial efficiency: towards circularity and decarbonisation

Julie Wells, current operations manager of the National Cleaner Production Centre SA (NCCPC-SA), previews the 2024 NCCPC-SA Conference, which aims to equip industry to transition to a green, low carbon and circular economy.



manufacturing/processing inputs. We were broadening out from being mostly about resource efficiency to being a sustainability conference,” Julie Wells tells *MechChem Africa*.

For the 2019 and the 2022 Covid-delayed events, the NCCPC-SA created conferences where delegates could specialise in different areas of resource efficiency and sustainability in industrial processes. “We had separate water, energy and waste tracks on the resource efficiency side; a track on life cycle management, and one for the circular economy, along with a track for skills development. Load shedding had started to become worse than ever by 2019, and it was also around that time that the National Waste Management Act was gaining momentum,” says Wells.

In 2020, she continues, UNIDO and the NCCPC-SA launched the Global Eco Industrial Parks programme. “That programme has since become one of our biggest, with the DTIC assigning us to take on projects to help revitalise our industrial spaces, our flagship being the East London Industrial Development Zone (ELIDZ),” she notes, citing the Ekandustria, the Ga Rankuwa and the Phuthaditjhaba Industrial Parks, all of which have benefitted from NCCPC-SA projects.

“Predominantly, we capacitate the park management teams, the service providers and individual businesses with things like zoning, we do workshops on energy and waste or industrial symbiosis, and we do energy baseline studies in preparation for renewable energy solutions. Then we identify opportunities and help with funding applications for implementation.

“We have a comprehensive toolkit – developed in partnership with UNIDO – to help parks and tenants. Depending on the plans and needs of the specific industrial park, the NCCPC-SA, funded by the UNIDO programme and with some DTIC funding assistance, strives to develop these parks into Eco-industrial parks,” Wells explains.

Sustainable Industrial Spaces & the 6th NCCPC-SA biennial conference

While in Egypt for the GIZ-hosted Sustainable



The NCCPC-SA has been organising a conference every two years since 2013, driven by the need for conversations around resource and energy efficiency, circularity and Eco Industrial Parks.

The NCCPC-SA was launched in 2002 and has since been running advocacy, education and facilitation projects such as the Industrial Energy Efficiency Programme to improve the sustainability performance of South African industry. “Before 2009, when loadshedding started to create panic across South Africa, the whole energy and resource efficiency agenda in the industrial sector was relatively low key. Energy efficiency quickly became a serious conversation after that, though, as companies began to prioritise their energy performance,” begins Julie Wells currently the operations and communication manager for the National Cleaner Production Centre SA (NCCPC-SA).

Conference evolution

Wells explains that the NCCPC-SA has been organising a conference every two years since 2013, initially driven by the need for a local conversation around resource efficiency, with energy efficiency as the core focus. “The first event, in 2013, received far greater adoption than we thought it would, with 380-odd people attending. So, we decided to make the NCCPC-SA conference a biennial event,” she says.

“We are government (DTIC) funded with support from UNIDO, so we prefer to keep the conference free to attend to make it easier for companies of different sizes to participate. This fits comfortably into our mandate to

drive sustainability, resource efficiency and cleaner production approached into South African industry,” Wells adds.

“By 2015, when we were preparing to host the second conference, this time in Durban, we had been running the Industrial Energy Efficiency Project for five years. There was still a strong focus on energy efficiency, and we were able to present numerous case studies from NCCPC-SA work on the Industrial Energy Efficiency Project. There was a massive uptake, 480-odd people attended that year, with Energy track dominating.

“In 2017, the conference moved to Cape Town and attracted a much smaller but broader audience,” Wells continues. The conversation was changing at that time. International funders as well as South African scientists were starting to talk about life cycle management, environmental footprinting and eco labelling.

The Hunters Dry brand had just become the first product in South Africa to undergo a full life cycle assessment with respect to the impact of the entire product – the cider and containers. That conference focused on the tools and capabilities needed in all companies, not just in heavy industry, and the focus was shifted towards the sustainability journey. “The Cape Town conference was where we first began to talk about industrial symbiosis: the exchange of waste resources to companies that can use these resources as



The East London industrial development zone (ELIDZ), South Africa's flagship Eco Industrial Park.



The NFTN's exhibition stand at a previous CSIR-Hosted NCCPC-SA conference.

Industrial Areas conference last year, the NCCPC-SA team was asked if South Africa could host a 2024 conference on the topic. “We therefore decided to merge our 2024 NCCPC-SA conference with the GIZ-hosted annual conference on the Eco-Parks theme and the Eco-Industrial Parks workshop hosted each year by UNIDO and the DTIC,” says Wells.

Highlighting the 2024 conference programme, she points out that the first day of the two-day conference, Wednesday 11 September, will be dedicated to fostering sustainable industries in South Africa, with, after a plenary, breakaway sessions on decarbonisation solutions for industry; smart solutions; resource efficiency; and circularity.

The second day, Wednesday 12 September, will predominantly focus on the jointly hosted GIZ-UNIDO-NCCPC-SA International conference on Eco Industrial Parks/Zones. UNIDO and GIZ are funding approximately 50 to 60 delegates from industrial parks around the world.

An industrial park is like a microcosm economy. It has an energy and a water supply, roads and streetlights. Tenants working in different industries share the space and the idea is to get them to share resources as well. No one should be sending waste material out of one gate while someone else is bringing in

the same new material in via another. And why have six different delivery vehicles employed by six different companies that are idle for most of a day? Working better together can massively reduce everyone's environmental footprint, while also making each business more efficient and more economically sustainable. From a community perspective, more jobs can be created, and the surrounding community can be better integrated into the local economy.

The two-day NCCPC-SA 2024 conference will start in the diamond auditorium, which can hold 500-odd people, at the CSIR Conference Centre, with the NCCPC-SA Industrial Efficiency Conference. On day 2, in the same auditorium, the International Eco Industrial Parks programme will be run. “After the plenaries, both conferences will have several parallel tracks to cater for the diverse needs of candidates.

On the Wednesday, for example, sessions will be run across three venues: “We will have a Solutions for Industry track and a Circularity and Resource Efficiency track, along with case studies and practical workshops on Energy Efficiency, Green Hydrogen, Renewable Energy and, most notably, decarbonisation. “The International Conference on Thursday will run in a similar vein and will include a number of industry-specific workshops on

Eco Industrial Parks (EIP), with global case studies and best practice solutions,” Wells informs *MechChem Africa*.

CBAM and the European Green Deal

The international context for this conference is very important for South African industry because of what is coming down the line from the EU, which is one of South Africa's largest trading partners. EU's Green Deal sets out ambitious plans for Europe to become the first climate neutral continent by fast tracking decarbonisation.

As part of the green deal, the EU is going to be implementing a carbon tax on all local producers and, most notably for us in South Africa, this will apply to any energy, materials, components, products or services imported into the EU. CBAM, which is currently on trial, is set to be fully enforced for all carbon intensive imports in January 2026. “South African companies exporting to the EU now have to submit the carbon footprint of the products being exported. And when CBAM kicks in, they may lose this business, because it will be cheaper for a European car manufacturer to buy more expensive but ‘cleaner’ aluminium from Germany, for example, than being subjected to carbon taxes for cheap aluminium from South Africa,” Wells explains, adding that South Africa's energy is still very carbon intensive.

CBAM is targeting Scope 1 emissions, the carbon emissions emitted directly from an exporter's production process; and Scope 2 emissions, which relate to the emissions produced because of the energy used in making the products. In South Africa, Scope 2 emissions are a big problem because most of our electricity is still generated from coal.

There are six energy-intensive sectors currently being targeted by CBAM: cement, electricity, fertiliser, iron and steel, aluminium and hydrogen. Of these, iron and steel and aluminium are incredibly important to our South African economy right now, and hydrogen is likely to become more important soon.

“Our principals at DTIC are continuously negotiating with our global partners. What we need to do is put evidence in their hands that work is being done in South Africa to decarbonise the economy. We at the NCCPC-SA are available to partner with industry to come up with accurate and useful information about our carbon footprint and to develop pathways through the challenges facing our industries.

This conference aims to go some way towards answering some big questions,” Julie Wells concludes.

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