

reCAPping



All set for a Battery Research Centre

A BATTERY RESEARCH CENTRE is being set up at the CSIR, edging South Africa one step closer to playing a meaningful role in the advancement of battery research and innovation. The centre aims to find ways of producing batteries that last longer, store more energy, are cheaper to manufacture, and environmentally friendly to dispose of. "We want the centre to be a leading world-class characterisation, testing and battery materials development laboratory that provides state-of-the art research facilities. I believe that the establishment of this centre is just one step closer to the ideal of becoming an energy-efficient country," concludes Dr Mkhulu Mathe, who heads up the CSIR's research group for energy and processes.

• Read the full story on page 8 of the Energy ScienceScope.

Exploring a clean development mechanism methodology for biodiesel

FUNDING AND BACKING of the clean development mechanism (CDM) of the Kyoto Protocol could help the biofuel industry to reach maturity and form a sustainable part of the world energy landscape. The CSIR, in collaboration with the Graduate School of Technology Management of the University of Pretoria, undertook an investigation into biodiesel production and how the CDM could enable such production. The study identified six typical embedded CDM projects in the larger biodiesel production process. The study further investigated the CDM regulatory environment for the biodiesel value chain and aimed to propose a consolidated methodological approach for CDM biodiesel projects.

• Read the full story on page 23 of the Energy ScienceScope.



Clean coal technology: gasification of South African coals

THE GASIFICATION of coal is only one type of clean coal technology being developed for power generation as a potential answer to reduce its role in global warming. The CSIR has identified integrated gasification combined cycle (IGCC) technology as a potential clean coal technology that could be applied in South Africa to increase efficiency and achieve near zero emissions of greenhouse gasses, which is likely to be a requirement for electricity producers towards the middle of the 21st century. Another reason why the CSIR is concentrating its research efforts on this particular clean coal technology is because IGCC holds the advantage of reduced water consumption and the potential for coproduction of liquid and gaseous fuels and chemicals.

• *Read the full story on page 30 of the Energy ScienceScope.*



Is renewable electricity a sustainable solution for rural South Africa?

WORLDWIDE, renewable energy as a sustainable alternative to 'carbon-intensive' energy sources is a hot topic. The post Kyoto 2012 commitments to low carbon technologies, to mitigate the effects of climate change, are based on renewable energies that are to be supported by a carbon tax. At the same time, the objective of South Africa's Millennium Development Goals is to reduce widespread poverty between 1990 and 2015. This includes the provision of access to energy for all South Africans. In 2003, the Department of Minerals and Energy embarked on a project to test the viability of renewable energy for locations not accessible to the national grid. CSIR researchers tested 'sustainability science thinking' on this project, with the objective of understanding how to speed up the research and implement new energy technologies.

• *Read the full story on page 36 of the Energy ScienceScope.*



Natural fibre composites for construction applications

AS THE WORLD becomes more environmentally aware, the drive towards eco-friendly materials and products has gained momentum. One of the projects that form part of the new strategic investment areas within the CSIR deals with the use of natural fibres in construction products. This initiative seeks to make a meaningful contribution to the concept of bio-based housing. As part of this project, a prototype natural fibre-based insulated sandwiched panel was developed at the CSIR under the leadership of Dr Rajesh Anandjiwala. The project has a strong focus on both materials and application-oriented product development. The roof panel in question is nothing more than a sandwich-type of structure. The structure consists of an expanded polystyrene centre and outer layers consisting of a natural fibre polymer composite.

• *Read the full story on page 62 of the Built Environment ScienceScope.*



Increased profitability through greener production

"Greener production methodologies and technologies must have a direct and positive impact on the bottom line of a company."

– Ndivhuho Raphulu, Director: NCPC-SA

The National Cleaner Production Centre of South Africa (NCPC-SA) was launched at the 2002 World Summit on Sustainable Development. Hosted by the CSIR, it is the key environmental sustainability programme of the Department of Trade and Industry, and is a member of UNIDO and UNEP's global resource efficiency and cleaner production (RECP) programme.

We are passionate about:

Enhancing the sustainability and competitiveness of South African industry, and contributing to economic growth and job creation in our country. Utilising the RECP methodology, we assist companies in identifying opportunities to increase water, materials and energy efficiency in their plants. We also facilitate the Industrial Energy Efficiency (IEE) Improvement Project in South Africa.

Our priority sectors are:

Agro-processing; automotives; chemicals; fibres, textiles

and clothing; pulp and paper; tourism; and metals fabrication, and capital & transport equipment. These sectors are identified in Government's Policy Action Plan for 2010 – 2013 (IPAP2) as key to competitiveness and job creation.

We assist industry through:

- RECP assessment services to identify plant inefficiencies and cost-saving opportunities
- Skills development training workshops presented by international experts
- Opportunities for companies (including SMEs) to partner with the IEE Project in implementing energy management systems and optimising the efficiency of energy-intensive systems.

Our services and training workshops are subsidised at this stage, and are offered to companies at little or no cost. Companies that adopt RECP as a tool to improve efficiency and competitiveness may apply for incentives, which include a tax rebate and a scheme to support the implementation of energy efficiency measures.



For enquiries about our services and training workshops:
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