



Industrial Development Corporation

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The IDC's role in stimulating and supporting infrastructure innovation : Past, **Present & Future**

CSIR CONFERENCE

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Overview of IDC



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- **Established:** 1940
- **Type of organisation:** Development Finance Institution (DFI)
- **Ownership:** State owned company, 100% owned by the SA government
- **Total assets:** R129.8 billion (31 March 2017 - group)
- **Total liabilities:** R41.5 billion (31 March 2017 - group)
- **Main business area:** Providing funding for entrepreneurs and projects contributing to industrialisation
- **Geographic activities:** South Africa and the rest of Africa
- **Products:** Custom financial products above R1m to suit project's needs including debt, equity, guarantees or a combination of these
- **Stage of investment:** Project identification and development, feasibility, commercialisation, expansion, modernisation
- **Number of employees:** 850 (December 2016)



- **Operational Footprint:**
- Head Office - Johannesburg
- 20 Regional and Satellite offices

IDC Sectorial Focus Areas

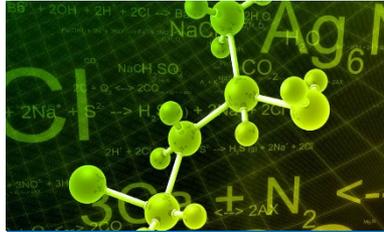


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Metals Value Chain

- Basic Metals and Mining
- Machinery and Equipment
- Automotive and Transport Equipment



Chemicals Value Chain

- Basic and Specialty Chemicals
- Chemical Products and Pharmaceuticals

Special High Impact Sectors

- Clothing & Textiles
- Media & Motion Pictures



Agro Value Chain

- Agro-processing and Agriculture

Enablers

- Industrial Infrastructure
- New Industries



High Impact Sectors

- Heavy Manufacturing
- Light Manufacturing & Tourism

Value Chains are earmarked for special attention including proactive project development, whilst High Impact Sectors are exclusively reactive

Industrial Infrastructure : Strategy



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- Unlocking industrial development opportunities through infrastructure investments and will achieve this through focus on the following sectors:

Energy:

- Conventional: coal, gas, nuclear.
- Renewables: solar, wind, hydro, biomass, biogas.
- Non-conventional: co-generation, waste-to-energy, geothermal, wave, hydrogen/fuel cells.
- Infrastructure: power transmission & distribution lines, energy storage (excl. batteries & petroleum)
- Efficiency: on-grid, off-grid, demand-side management (installation & monitoring) – load limiting & shifting.

Logistics (mainly PPP):

- Land: road, rail, rope-ways, shared storage (e.g. cold, silos), terminals, industrial hubs.
- Marine: ports/terminals, shipping/cargo, waterways, offshore facilities, port facilities, marine storage.
- Air: ports/terminals, cargo (freight)

Telecoms:

- Broadband: Fibre, wireless, transmission equipment, open access/shared infrastructure.

Water (mainly PPP):

- Storage: reservoirs, dams.
- Transportation: pipelines.
- Treatment: Desalination, waste water, fresh water.
- Bulk Services: Irrigation systems, pump stations.



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Case Studies: The Past: Innovative infrastructure

Leading industrial capacity development

Logistics - Case Study Kuka Ropeway



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- Kuka Ariel Ropeway is in Steelpoort, Mpumalanga will transport 100,000 tons of chrome per month from GlencorXtrata Thorncliffe mine to the smelter previously transported by road.
- IDC co-developed the project with the sponsor as it supports the strategy of innovative logistics solutions to reduce the logistics cost
- IDC exposure ca R174m
- Project currently in implementation stage

Development Impact

- To create 28 jobs
- 60.9% Black women shareholding
- 70% Local content
- Impact in reducing maintenance costs on road infrastructure
- Potential to replicate the model to other mining operations
- Reduction in green emissions
- Project support the key value chain which is improving efficiencies in the production of ferrochrome
- IDC pioneering the revival of the ropeway industry as a greener and cheaper mode of movement of goods

Leading Role Player with CSP Technology



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- IDC was at the forefront of the emergence of the CSP industry in South Africa by co-developing the first 5 CSP projects in the country.
- Renewable energy sources such as solar PV and wind have a constraint in supplying base load energy.
- CSP offers the option to provide an alternative to coal as potential base-load electricity due to its storage capacity.
- CSP plants are able to reliably deliver a stable electricity supply during peak demand periods, even well after the sun has set.
- IDC has participated in Round 3.5 and 4 of REIPPPP in support of the CSP molten salt tower technology as this is seen as an innovation that could reduce the cost of electricity in South Africa due to the higher capacity factor that tower technology has relative to parabolic trough technology.
- Spearheading new technology that is globally undergoing significant innovation and SA will have the first mover advantage
- Supporting the technology is also strategic based on localisation considerations.
- In addition to what is already sourced locally, other components such as receiver tubes, heat transfer fluid pumps, swivel joints and mirrors, are identified as having potential to be manufactured locally.



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The current & future

Leading industrial capacity development

Water Initiative to Support Agricultural Sector



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- South Africa is a water scarce country
- Agriculture uses ca 60% of water in SA
- IDC is looking to develop a financial product aimed at increasing water and resource use efficiency in agricultural sites in South Africa.
- This will be done through a collaborative initiative with the agriculture sector and other DFIs to reduce water loss from irrigation networks thereby increasing production capacity.
- One approach is to lend farmers funds to increase the hectares under cultivation with more efficient pumping, irrigation and sprinkling technologies.
- Recent studies by Stellenbosch University in agricultural regions show a direct correlation between increased water efficiency and energy savings.
- This is an area where we believe technology adaptation is critical to optimise water usage and partnerships such as the one we have with CSIR are important

Efforts to Support City of Cape Town Emergency Program



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- With South Africa facing even more dire water shortages than expected, the need for desalination is vital.
- Desalination technology has the long term potential to increase South Africa's water supply and transform the country's water shortage into a water surplus if the current high cost and high energy consumption can be reduced
- The City of Cape Town ("CoCT"), through its water resilience strategy program, is looking at a programme of desalination to supplement potable water.
- IDC intends to participate in the program by supporting projects looking to design, supply, commission, operate and later decommission sea water reverse osmosis plants (desalination plants) that will supply portable water to the CoCT.

Fuel Cells to Supply Clean Energy

- Fuel cells need platinum's catalytic properties to provide flexible green energy.
- South Africa has almost 90 % of global platinum reserves.
- Fuel cells have been identified as a key initiative by the Department of Trade and Industry (dti) in the IPAP and has been prioritized by Government's HySA Programme under the Department of Science and Technology (DST).
- IDC New Industries has identified this as a high potential new sector to pro-actively develop.
- IDC is co-ordinating the National Fuel cell Industry Development Roadmap and Strategy - to align government and private sector and assist industrial development of the value chain by beneficiation and localization.

The IDC funded the first commercial fuel cell power project at the Chamber of Mines building in January 2015.



Energy Storage to assist greater deployment of Renewables



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- SA has the potential to supply a significant portion of its energy supply from renewables - mainly solar, but also from wind.
- Solar and Wind energy output cannot be adjusted to match demand & results in excess and shortages on its own.
- To balance this variable non-controllable generation with demand, energy storage is required.
- Energy storage can also enable decentralised (distributed) power.
- Costs of energy storage are rapidly declining and over the next 5 to 10 years for stationary applications alone 80 gigawatt hours of installed storage capacity with investment of \$ 50 billion dollars are expected. If electric vehicles are included, the numbers can become orders of magnitude greater.
- This sector has many opportunities for SA & our neighbouring countries, so IDC in collaboration with USTDA and industry associations has lead a cross-sectoral task team to develop an industry development roadmap based on a techno-economic study.
- A pro-active enabling strategy is being followed to position South Africa for this growth opportunity.
- Demonstration/pilot projects are being developed

Concluding Remarks



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- IDC pioneered the revival of the **Ropeway Industry** as a greener mode of movement of goods, leading to reduction of logistics costs and improvement in efficiencies in the production of ferrochrome. There is potential to replicate the model to other mining operations in the country.
- In the **Renewable Energy Sector**, we were at the forefront of the emergence of the CSP industry by co-developing the first 5 CSP projects in the country. CSP plants can reliably deliver stable electricity supply during peak demand periods.
- The **Water Sector** presents opportunities for collaboration with partners such as the CSIR. We are developing financial products designed to increase water and resource use efficiency in agricultural sites and to participate in the CoCT Emergency Program which seeks to use desalination plants to supply portable water.
- Other opportunities for collaboration are in the development and localisation of **Fuel Cells** Technology/Industry in South Africa.
- In order to position South Africa for growth opportunities in **Energy Storage**, we are following a pro-active strategy which includes developing demonstration/pilot projects.
- The IDC is committed to unlocking industrial development opportunities through infrastructure investments and innovation in South Africa. We call on all relevant stakeholders to partner with us in these efforts.



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Thank you