LESEDI
ENERGY ENGINEERING

SERVICES DIVISION

www.lesedins.co.za

LESEDI'S SERVICES DIVISION

Lesedi's Services Division brings deep technical expertise to full-scope nuclear maintenance and outage support both across South Africa and at international facilities.

With extensive experience at Koeberg Nuclear Power Station and a growing global presence, we're trusted for our safety-first execution, precision, and proven nuclear capabilities.

We do more than maintain systems we integrate with plant operations, collaborate across engineering disciplines, and continuously innovate to ensure critical systems run safely, efficiently, and in full regulatory compliance.

WHAT WE DO: STRATEGIC NUCLEAR MAINTENANCE & SUPPORT

CORE MAINTENANCE & OUTAGE SERVICES:

REACTOR COOLANT PUMPS & FUEL HANDLING SUPPORT

In collaboration with site engineers, our team supports the safe and efficient management of reactor coolant systems and nuclear fuel.

Though often unseen, this work is vital to the plant's continuous operation.

Lesedi provides essential support for fuel-handling operations and reactor coolant pump (RCP) systems.

Our services cover both routine and outage-based tasks, including inspection, maintenance, and assistance with the safe runload and reloadof fuel and related infrastructure.

STEAM GENERATOR MAINTENANCE

Our steam generator team manage everything from sludge lance testing to manway access and nozzle dam operations.

We inspect, repair, and return systems to service – safely, efficiently, and without compromise.

Lesedi is trusted with the full scope of steam generator inspection and maintenance during outages both at Koeberg and international facilities.

Our scope includes:

- Sludge Lancing
- Eddy Current Inspections
- Secondary Side Inspections
- Tube Plugging & Repairs
- Manway Access & Nozzle Dam Installation/Removal
- Gap Measurement

We ensure the safe and timely return to service of these critical systems – always aligned with client requirements and regulatory standards

VALVES & PUMPS

We maintain, refurbish, and recertify a wide range of valves and pumps – including nuclear-class components.

From Fischer and Fratol to C&I valves, our teams combine deep technical expertise with full regulatory compliance.

Our team delivers lifecycle maintenance and refurbishment of both nuclear and conventional valves, including:

- Fratol
- Fischer
- Dallas
- Masoneilan
- Control & Instrumentation Valves

We manage disassembly, cleaning, reconditioning, testing, and recertification ensuring optimal performance and full regulatory compliance. Additionally, our pump expertise supports safe plant operation under high pressure and temperature conditions.

HVAC & FILTRATION SERVICES

Our team is fully trained and authorised to maintain Koeberg's HVAC systems including chillers, filtration units, and ventilation for high-risk zones.

This highly specialised work requires deep expertise, and we are proud to deliver it with precision and care.

Lesedi's team is authorized to maintain critical HVAC systems at Koeberg. Our HVAC division is built on 28+ years of legacy and over 100 years of combined team experience managing systems.

Key Systems We Support:

- Centrifugal Carrier 19DH DEG Chillers
- Centrifugal (York YK) DEG Chillers
- Carrier Chillers
- Daikin Chillers
- Trane Chillers
- Filtration Infrastructure

Over 2,000 filters maintained across Koeberg, including:

- HEPA filters (source test compliant)
- Iodine/Charcoal filters (radiation-controlled zones)
- Pre-filters, bag filters, pads, and coalescers

Critical Areas Supported:

- Reactor Pit Cooling
- Containment Ventilation
- NAB & Fuel Building
- Electrical Building & Control Room
- Fire Ducting Systems & Fire Damper Resets
- Server Rooms, Cask Storage, ISI Vaults
- ACP1, Edusec, Documentation Centre, Visitor Centre, and more

Our HVAC team also leads innovation and system upgrades in partnership with Engineering- driving energy efficiency, compliance, and modernization across the plant.

MECHANICAL TUBE CLEANING

Through our exclusive partnership with Conco in Sub - Sahara Africa, we deliver mechanical tube cleaning that outperforms high-pressure cleaning up to 70% faster and 90% cleaner, a smarter, more efficient solution for modern plants.

Lesedi is the exclusive Sub - Sahara African agent for Conco Systems, the global leader in mechanical tube cleaning. This service is offered as a safer, faster, and more efficient alternative to high-pressure water cleaning.

Why Mechanical Tube Cleaning?

- **70% faster** than HP water cleaning
- **90% less** wastewater generated
- **24 bar safe pressure** vs. 3,000 bar for HP systems
- **Compact footprint** for shutdown efficiency

Technologies Used:

- **TruFit** – For light/medium fouling
- **Excaliber** – Rotary cleaning for tough build-up
- **MiteeMouseII** – High-power handheld unit
- **HydroDrill** – Drill tip cleaning for fully blocked tubes
- **FinTech** – For online Fin-Fan exchanger cleaning (no shutdown required)

Pre-Inspection & Reporting:

Before any job begins, we conduct a full pre-inspection:

- Verify plant conditions and tube accessibility
- Define scope and safety parameters
- Capture before/after data (performance, cleanliness, efficiency)

All operations are measured on safety, time, budget, and final tube performance.

DMDS (DIMETHYL DISULFIDE C2H6S2):

OIL REFINERY SULPHIDING

Lesedi has been assisting Arkema and their Carelflex® (onsite sulphiding service for refineries) team to execute DMDS (DMDS Evolution® E2) dosing locally and internationally.

The main purpose of dosing with Dimethyl Disulfide (DMDS) at refineries is to act as a sulfiding agent to activate hydroprocessing catalysts (hydrotreating and hydrocracking). It is used to convert metal oxides on fresh or regenerated catalysts into their active metal sulfide form, ensuring high catalytic efficiency for removing impurities like sulfur and nitrogen from fuels.

Key purposes and benefits of using DMDS include:

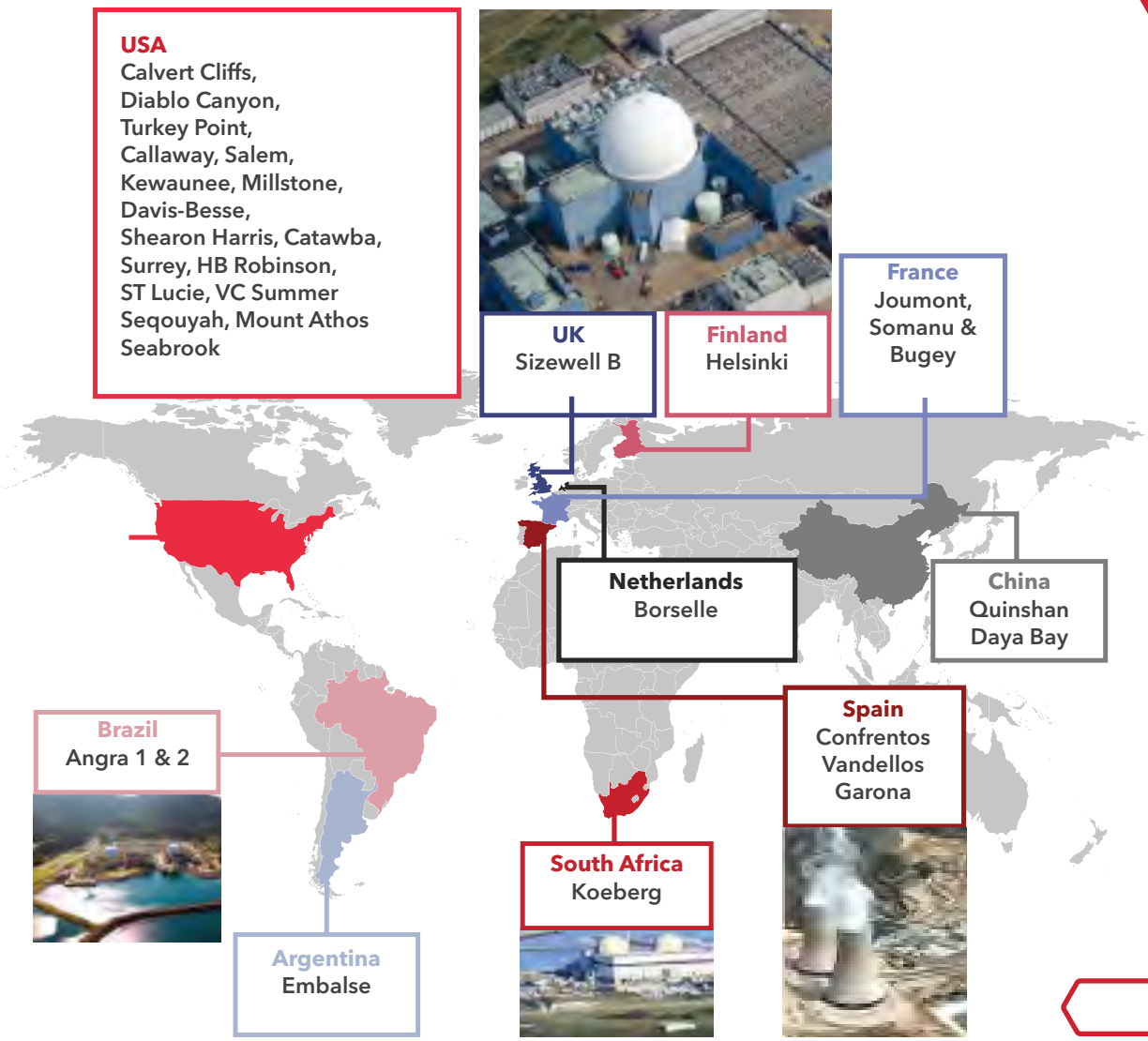
- Catalyst Sulfiding (Activation): DMDS is injected during startup or to maintain activity, where it decomposes at relatively low temperatures to form hydrogen sulfide, which then converts catalyst metal oxides into active sulfides.
- High Sulfur Content: With 68 wt% sulfur, it is considered the most efficient, cost-effective, and standard sulfur carrier for catalyst activation.
- Anti-Coking/Passivation Agent: In petrochemical steam-cracking units, DMDS is added to inhibit coke formation and carbon monoxide production on the furnace coils. This reduces carburization, extends furnace run lengths, and improves productivity.
- Optimal Decomposition: DMDS breaks down into and methane, which does not cause premature coking of the catalyst bed, unlike some other additives.
- Operational Safety: Due to its high sulfur concentration and liquid state over a wide temperature range, it is easier to handle, store, and inject compared to other sulfiding agents.

DMDS is critical for producing ultra-low-sulfur fuels and ensuring that refinery units operate with maximum efficiency.

Arkema DMDS Local and International Assignments: Norway, Germany, Hungary, Czech Republic, Romania, Turkey and in South Africa.

INTERNATIONAL AND LOCAL SCOPE SUPPORT

COUNTRY	NUMBER OF OUTAGES
United States of America	**76** Refuelling, Steam Generator & RCP Pumps
South Africa	**52** Full Nuclear Island Scope
United Kingdom	**5** Steam Generator, Valves & Pumps, RCP
Brazil	**4** Refuelling, TVI, Steam Generator
Netherlands	**4** Refuelling, Steam Generator
Spain	**3** Valves & Pumps
China	**2** RCP Pumps
Finland	**2** Refuelling, TVI, Steam Generator
Argentina	**1** RTVI



INTERNATIONAL AND LOCAL FOOTPRINT

Lesedi has supported over 106 international outages, bringing South African excellence to nuclear stations across:

As a proudly South African company, Lesedi plays a leading role in supporting the country's energy infrastructure, with a particular focus on the continent's only nuclear power station: Koeberg Nuclear Power Station (KNPS).

Our Services Division is fully embedded within Koeberg's operational framework, providing authorised expertise, outage support, and critical maintenance that keep the plant running safely and efficiently.

Our teams ensure that high-risk, high-value systems operate to the highest standards, helping Eskom deliver consistent, regulated power to millions of South Africans. Beyond Koeberg, Lesedi supports a growing number of auxiliary and industrial facilities across the province.

These include HVAC installations, ventilation maintenance, and general infrastructure upgrades at:

- Training centres
- Server rooms and IT hubs
- Logistics and bulk storage facilities
  - Administrative buildings (ACP1, Edusec, Documentation Centre, and more)
  - Public-facing centres such as the Koeberg Visitor Centre and Conservation Centre

Our team is made up of locally trained, highly skilled professionals. By working at the frontlines of South Africa's nuclear capability, Lesedi not only retains world-class skills – we help grow them for the next generation.

WHY PARTNER WITH LESEDI SERVICES DIVISION?

Lesedi's team is authorised to maintain Koeberg's HVAC and filtration systems.

Delivers comprehensive services spanning valves, pumps, chillers, and reactor coolant pumps (RCPs).

Exclusive African partner for Conco's mechanical tube cleaning technology.

Proven track record with over 100 international nuclear outages.

Embedded support partner at Koeberg Nuclear Power Station.

Focused on safety, precision, and reliable performance every time.

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