



# MAINTAINING **POWER**

GLOBAL OPERATION & MAINTENANCE FOR  
CONVENTIONAL AND NUCLEAR POWER PLANTS

[www.dietsmann.com](http://www.dietsmann.com)

SMART MAINTENANCE SOLUTIONS **FOR POWER GENERATION**

**Sonadiets**   
A JOINT VENTURE COMPANY OF SONANGOL AND DIETSMANN



Sonadiets Limitada, the joint venture between Sonangol and Dietsmann, is the Dietsmann operating company that maintains energy facilities in Angola. Dietsmann is the leading independent specialist in Operation & Maintenance services for continuous-production plant in the oil & gas, power and mining industries.

# **OPERATION & MAINTENANCE SERVICES**

## FOR INDEPENDENT POWER PLANT OWNERS AND THE POWER UTILITY MARKET

Dietsmann has provided global maintenance services to the oil & gas and energy industry for over 40 years. The assets for which the Company provides Operation & Maintenance services include not only upstream oil & gas production facilities, but also conventional and nuclear power generation plant and mining installations of various types and sizes.



### OUR STRATEGY

Dietsmann is an independent provider of Operation & Maintenance services to power plant owners and owners/operators of continuous-production plant in the oil & gas, conventional and nuclear power generation and mining industries. Our independence from OEMs and engineering and construction companies ensures the integrated Operation & Maintenance of clients' assets free of any conflict of interest with regard to overhauls, upgrades or modifications. As our extensive and comprehensive oil and gas experience dovetails seamlessly with operating and maintaining power generation installations, we can also provide these services to clients investing in power plants in regions that are outside our current area of operations.

### PROJECT-SPECIFIC SOLUTIONS

Our project-specific solutions for power plant owners comprise the mobilization of new operations, including the provision of personnel, tools and processes for the facility, through to its day-to-day operation and regular maintenance. Many of our services can be provided on a fixed-cost basis.

### OUR ADDED VALUE

We enable our power generation clients to focus on their core competences and requirements by providing them with a single dedicated point of contact for all Operation & Maintenance, while ensuring costs are aligned with their revenue stream. This reduces their operating risks, which often results in reduced insurance premiums.

### OUR CONTRACT OFFERINGS

We offer a range of contract options associated with various levels of service for key power generation facilities. The most comprehensive level is the provision of client-specific A-Z Integrated Operation & Maintenance, which we have been providing for key power generation facilities in Europe, Africa, Asia and South America since early 2006. Several of the independent conventional and nuclear power generation facilities and power plants we operate and maintain are owned by utility companies. In addition to these broad-scope service offerings we also offer a range of service packages tailored to clients' specific needs. Currently we maintain more than 15 Gigawatts of gas and steam turbine-driven power units.



- *Start-up and mobilization* • *Project management support*
- *Technical support* • *HSEQ support* • *Performance monitoring*
- *Administrative support* • *Multidisciplinary engineering*
- *International HR* • *International logistics* • *Financial*

# COMPREHENSIVE, INTEGRATED OPERATION & MAINTENANCE SERVICES

Dietsmann provides clients with a permanent contract organization. The Company's integrated Operation & Maintenance activities comprise performance testing, operational performance monitoring, maintenance, repairs, shutdowns, workshop provision and statutory inspections. In most cases the scope of work also includes contract management and support services, spare parts provision and stock management, OEM intervention management, maintenance and inspection engineering, multidisciplinary engineering and technical assistance on demand, as well as training client personnel.

## **PRICING SYSTEM**

The pricing system for integrated Operation & Maintenance contracts generally comprises lump-sum payments for mobilization, demobilization and additional services, such as major equipment inspections, plus a fixed monthly fee for the permanent organization. Spare parts procurement and the provision of some other additional services, such as laboratory analysis, are usually paid on a reimbursement basis. The majority of contracts include an incentive and

penalty scheme and a set of guarantees. The incentive/penalty scheme may be based on service and operational KPIs, plus additional penalties associated with an agreed schedule for mobilization and the replacement of key personnel. The operational guarantees are generally based on our client's operating obligations on a 'Back to Back' basis and usually cover availability (including forced and scheduled outage hours) and capacity.



Nigeria

### **OPERATIONAL SCOPE**

- Integrated Operation & Maintenance activities
  - Performance tests (PPA obligation)
  - Maintenance (PE/PD/CO), repairs, shutdowns
  - Workshop management
  - Statutory inspections
  - Major overhauls
  - Modifications and improvements
  - LTSA (Long Term Service Agreement)
- Materials management
  - Full responsibility for CAPEX & OPEX
  - Procurement of spares
  - Inspections
  - Warehouse management
- Maintenance Engineering (including CMMS)
- Training of the client's personnel

- Additional personnel and equipment on call
- Support activities (HSE, HR, IT, medical, security, civil, housekeeping)
- Additional services at the client's request (multidisciplinary engineering, specific services)

### **MANAGERIAL SCOPE**

- O&M contract management
- Community relations management
- Client's commitments management

### **MAIN MACHINE OEM AND NON-OEM SUB-CONTRACT**

- Provision of qualified specialists on a permanent basis
- Provision of technical assistance on a call-out basis
- Execution of scheduled inspections
- Provision of spare parts



Congo

# INTEGRATED OPERATION & MAINTENANCE REFERENCES

Dietsmann provides Integrated Operation & Maintenance (IOM) and LTSA (Long Term Service Agreement) services for several independent power plants in Africa. These services include full range O&M, plus management services such as community relations and client commitments.

## REPUBLIC OF CONGO

In the Republic of Congo we provide substantial employment opportunities for local people: over 80% of our employees serving under a contract with Centrale Eléctrique du Congo are Congolese. The power plant includes two Ansaldo (E class V94.2) gas turbines fuelled by natural gas. The plant has a nominal capacity of 300 MW (2 x 146 MW) and provides over 80% of the country's electricity needs.

Ansaldo is an important component of the 'zero flaring' program implemented by the Congolese government. Providing the Republic of Congo with a dependable source of electricity has reduced the country's dependence on seasonally-available hydro-generated power. We have carried out an upgrade on a GT with an increase of 8MW power output. The good performance has led to the client purchasing a third GT with the new V94.2 design (MXL2). Installation is scheduled for 2019.



## **NIGERIA**

*Dietsmann provides fully-integrated Operation & Maintenance services at several power plants in Nigeria through its Nigerian subsidiary, NetcoDietsmann. These plants, which have a combined power output of approximately 1,220 MW, provide a major portion of Nigeria's electricity needs.*

*As in all Dietsmann's projects, the proportion of national employees is very high.*

Dietsmann has been entrusted with the integrated Operation & Maintenance of a portion of Nigeria's energy supply since January 2006 when we began serving the Country's first independent power plant. Other major power facilities have since been added to the portfolio.

Our Nigerian subsidiary, NetcoDietsmann, has achieved average plant availability of 97%. The scope of the contracts covers the full Operation & Maintenance and LTSA (Long Term Service Agreement) of the plants, from start-up and mobilization through performance monitoring to international logistics, and includes the complete operation of both Alstom gas (E class units, GT13E2 – 2 pax, extended life MXL - 3 pax versions) and steam turbines in 2 & 3+1 configurations with cooling tower air-cooled condensing systems. These contracts provide high-level technical employment opportunities for Nigerian technicians and engineers. Currently around 80% of all NetcoDietsmann's employees are Nigerian.

In addition to the management of the Operation & Maintenance contracts, our managerial activities include community relations, client commitments and, in some cases, the main machinery OEM sub-contract. NetcoDietsmann believes it has gained its clients' trust through is a combination of its impeccable performance in the O&M of oil, gas and power production facilities in Nigeria and Dietsmann's worldwide reputation.

### **KEY ACHIEVEMENTS**

- Eleven major inspections (due to extreme operating conditions at each of the sites)
- Major unit overhauls completed in between 31 and 34 days of working around the clock
- A dedicated CMMS module developed for materials management
- Twelve years of work (8,700,000 hours) completed without a recorded LTI.



# GLOBAL MAINTENANCE REFERENCES

## LIBYA

Dietsmann has been entrusted with the global maintenance of Libya's newest and most efficient gas processing facilities. Since the contract was awarded the efficiency of the very complex plant has improved significantly. We are proud of the performance of our team in Libya, which includes representatives of twenty nationalities.

## KEY ACHIEVEMENTS

- No shutdowns due to mishandled maintenance operations
- 3 million hours worked without a single LTI
- The integration of 107 local Oil & Gas personnel
- 1<sup>st</sup> major shutdown completed four days ahead of schedule
- 2<sup>nd</sup> major shutdown completed seven days ahead of schedule
- 3<sup>rd</sup> major shutdown completed two days ahead of schedule
- 4<sup>th</sup> major shutdown completed two days ahead of schedule
- Major overhauls of GE Frame 5 units performed within the time schedule





## **RUSSIA**

*Russia is the world's fourth largest generator of electricity, after the USA, China and Japan.*

*Around 68% of Russia's electricity is generated by thermal plants and oil, natural gas and coal-fired plants, 16% by nuclear plants and 10% by hydropower.*

As the world's largest gas producer and exporter, Russia had an enormous energy-saving potential: at least 30 billion cubic meters – a fifth of Russia's exports to European OECD countries – to be saved every year through enhanced technology and energy efficiency. In the early 1990s a market reform process aimed at improving the efficiency of electricity generation, transmission, distribution and supply was started. Since then economic recovery has led to a major increase in total electricity consumption and the Russian energy sector is now attracting major domestic and international investment. This has, in turn, led to strong demand for qualified maintenance companies.

The thermal power generation sector is represented by six OGKs (wholesale generating companies), with activities are spread throughout the country, and 14 TGKs (territorial generating companies). Thanks to our extensive experience and expertise in Operation & Maintenance – including maintenance organization, maintenance planning and execution, maintenance engineering, and the provision of auxiliary services such as overseas procurement– we have been able to answer the increasing demand for maintenance in Russia's thermal power generation sector. As modernization is still taking place, projects are generally labor intensive and of considerable size.

Currently we provide global maintenance and repair services for power plants owned by Russian utility companies. These long-term contracts cover many of the global maintenance services we offer (routine and breakdown) and also incorporate the main unit overhauls. Bespoke capital investment projects on assets are generally awarded under separate contracts through an open tender process.

In addition to our headquarters in Moscow we have four branch offices where a total of 1,700 field personnel are based. Each of the branch offices is located close to one of the major plants, which have a combined installed capacity of over 8.7 GW.

The power plants for which we provide global maintenance services include conventionally-fuelled power plants using both natural gas (25 turbines) and coal (10 turbines), as well as two combined-cycle gas turbine plants (one GE Frame 9FB and one Siemens V93.2A). Our services also include community relations management and client commitments management. As in all other countries we strive for the highest level of local employment in our maintenance organization. In Russia this amounts to 97% of our employees.



# NUCLEAR POWER AND MINING REFERENCES

DietsmannEnergoremont's core activities encompass the maintenance, optimization and modification of power generating, refinery and mining facilities, including the introduction and application of new technologies in training, monitoring and inspection.

## SCOPE OF WORK

- Installation of boilers, turbines, generators, coal handling, conveyors, electrical systems, transformers, medium and high voltage networks in newly constructed power generating facilities.
- Repair, rehabilitation, reconstruction and modernization of power machinery and facilities.
- Manufacture of:
  - Power equipment, spare parts and steel structures for regular maintenance, major overhauls and main equipment reconstruction.
  - Induced draft fans, air fans and impellers, mill fan bearing units, screw-type slag removal, feeders and coal crushers, spare parts and packages for regenerative air heaters, metal structures and pressure vessels and unconventional (optional) equipment as well as mechanical treatment and locksmith's work.
- Research and consultation services, engineering analysis and project management.
- Design of steam and water heating boilers, burner systems, heated surfaces and steam, air and gas lines.
- Operational and warranty tests of steam boilers and their auxiliary equipment.
- Repair, reconstruction and construction of desulphurization plants, electrostatic and sleeve dust filters, waste removal systems, technical decontamination of industrial sites and environmental recovery.
- Supply, installation and commissioning of machinery and equipment for nuclear and conventional energy, transport infrastructure, metals and valves.



*DietsmannEnergoremont - formed by the 2017 acquisition of 97.5% of the shares of Energoremont Holding JSC, the largest maintenance company in Bulgaria - has 45 years of experience in the nuclear and conventional power and mining sectors in the Balkan Peninsula and Eastern Europe.*

### **HEATING SYSTEMS**

Dietsmann also provides Operation & Maintenance services for heating systems:

- Manufacture of power equipment, spare parts and steel structures for regular maintenance, major overhauls and the reconstruction of the main equipment in thermal power plants (TPP), hydro-electric power plants (HPP), nuclear power plants (NPP) and heating and factory power plants and systems.
- Research and consultation services, engineering analysis, project management.
- Design of steam and water heating boilers, burner systems, heated surfaces, steam, air, and gas lines, and operational and warranty testing of steam boilers and auxiliary equipment.
- Modernization of district heating networks:
  - Construction and installation of new capacity
  - Supply and installation of substations
  - Planned repairs



# OVERVIEW OF REFERENCES WORLDWIDE

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