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upgrades these ships need to install by 2030 in order to reach their targets.

The 2004 Ballast Water Management Convention has also meant that the ships must not cross-contaminate local ports with the sea water used to ballast the ships. Goltens Green Technologies utilise cutting edge laser-scanning technology in order to install the water treatment systems necessary to comply with the convention.

Goltens Dubai, a one-stop shop for the shipping, offshore and marine industries.

There are an increasing number of AEMT Members who can offer specialist services for the marine and shipping industry. Marine grade motors, propulsion systems, ballast pumps, gearboxes, turbines and generators makeup a small portion of the plant that require attention from AEMT members. Services on offer range from the replacement of parts and systems to the full turn-key overhaul of a vessel. One member who offers a full turn-key service is Goltens, and one of their sites, found at the Dubai Maritime City (DMC), is an impressive place to visit.

World Wide Shipping

Around 90% of world trade is carried out by the international shipping industry. Without shipping the import and export of goods on the scale necessary for the modern world would not be possible. Seaborne trade continues to expand, bringing benefits for consumers across the world through competitive freight costs. Thanks to the growing efficiency of shipping as a mode of transport and increased economic liberalisation, the prospects for the industry's further growth continue to be strong.

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The 2015 Paris Agreement has put pressure on shipping companies to

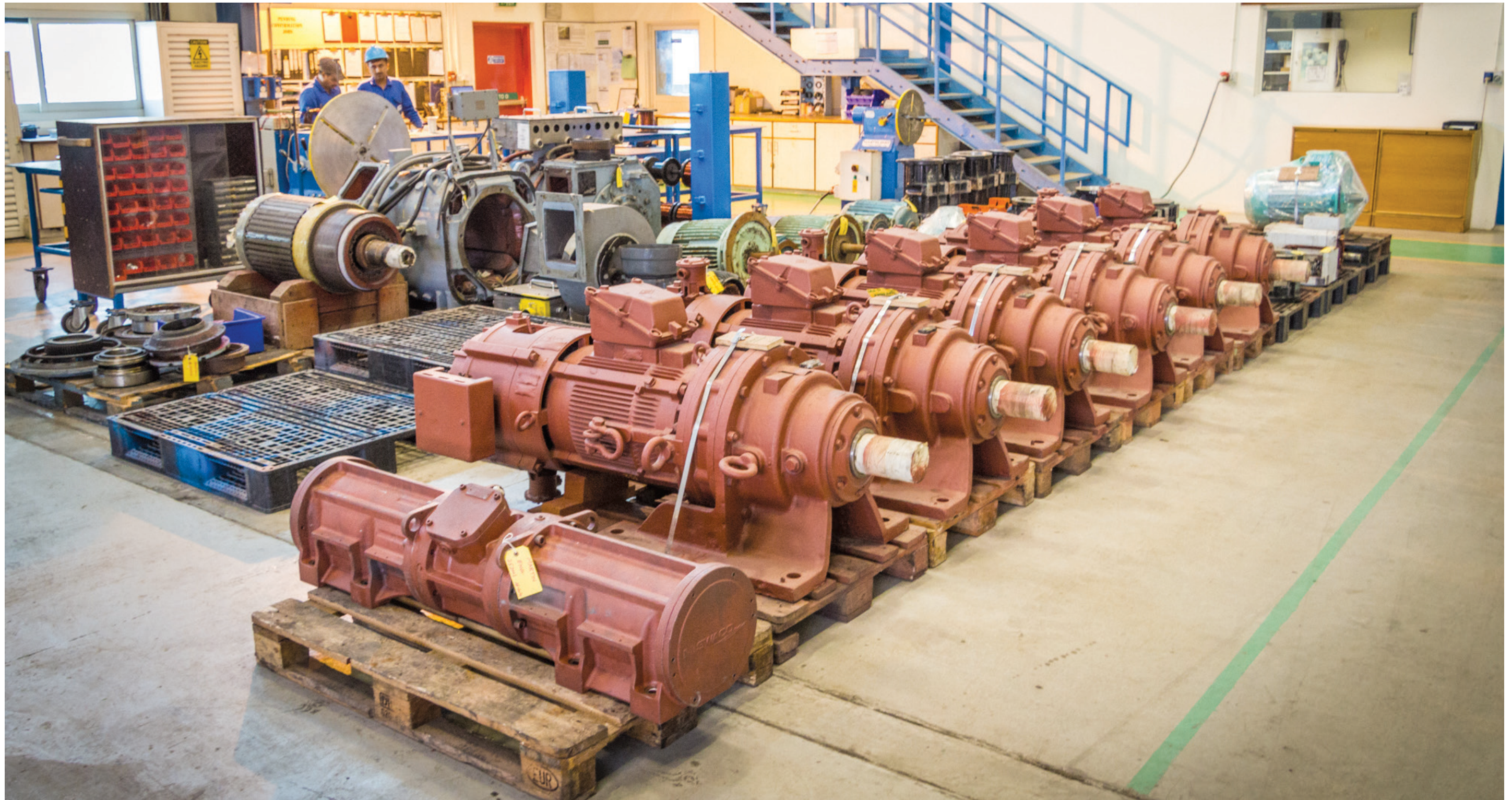
reduce emissions of CO₂, sulphur and nitrogen oxides. This major pressure point on the shipping industry has meant that companies such as Goltens are able to take advantage of the equipment

Goltens Dubai

Approaching DMC you are aware of the immense engineering capability of the manmade island Goltens Dubai shares with Dubai Dry Docks, another member of the AEMT, plus many other Marine based engineering companies.



Roy D'Souza, Regional Sales Manager, at his Desk at Goltens Dubai



Six Ex Motors in the rewind workshop ready for delivery to an offshore rig.

Going through security you pass docks crammed with ships and rigs, such as anchor handling & supply vessels, well stimulation vessels, and drilling rigs. To your right are the ship lifting systems belonging to Dubai Drydocks that can haul up to 6000 ton vessels from the water.

Upon arrival, I'm introduced to Roy

D'Souza, the Regional Sales Manager for Goltens Dubai. His office looks out straight onto the docks where a rig is moored up for service. Trained as a Mechanical and Marine engineer, he served his time on board vessels travelling across the globe, but with the calling of a young family, eventually opted to settle into office life at Goltens Dubai in 2003.

Roy hasn't looked back since starting; "Goltens is a great company to work for. It's a family-owned business, and we are very well looked after" he explains.

It was established by founder Sigurd Goltens in New York in 1940 to meet a growing demand for diesel engine repair and spare parts, the company quickly became a leading in-situ machining and

engine repair specialist, a position it has held for over seven decades.

Recognising the need to be where his customers needed service, Goltens sought to expand his company's presence to a global audience enabling the provision of service "Around the clock – around the world".

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Goltens have one of the largest VPI tanks in the Dubai region.

Today, realising Sigurd's goal, Goltens operates as a one-stop shop to the marine and shipping industry to over 25 locations in 15 countries.

Dubai Operations

Roy goes on to explain that "sharing the DMC island with Dubai Drydocks means that Goltens can make use of their lifting capabilities. Most ships coming in for service are support vessels for the larger offshore rigs and platforms, such as anchor handling tugboats, supply, and crew boats."

Every two and a half years these ships have an intermediate docking survey followed by a full 5 year survey, which means hauling them out of the water for inspection.

The footprint of the Dubai facility is enormous – it has to be in order to provide the turn-key servicing of these moored vessels, in one location, and with minimum subcontracting. It offers



Thomas Kurien, HSE Advisor, beside the company's three quality systems for ISO 14001, 18001 & 9001

a huge range of skills, engineering capabilities, and stock.

As vessels continuously become more advanced, Goltens works closely with engine and equipment manufacturers to update their engineers on the

latest technology. Having highly skilled personnel with close relations to suppliers enables Goltens to provide quick retrofit packages, and turnkey systems for propulsion, power generation, and automation control.

(continued next page)



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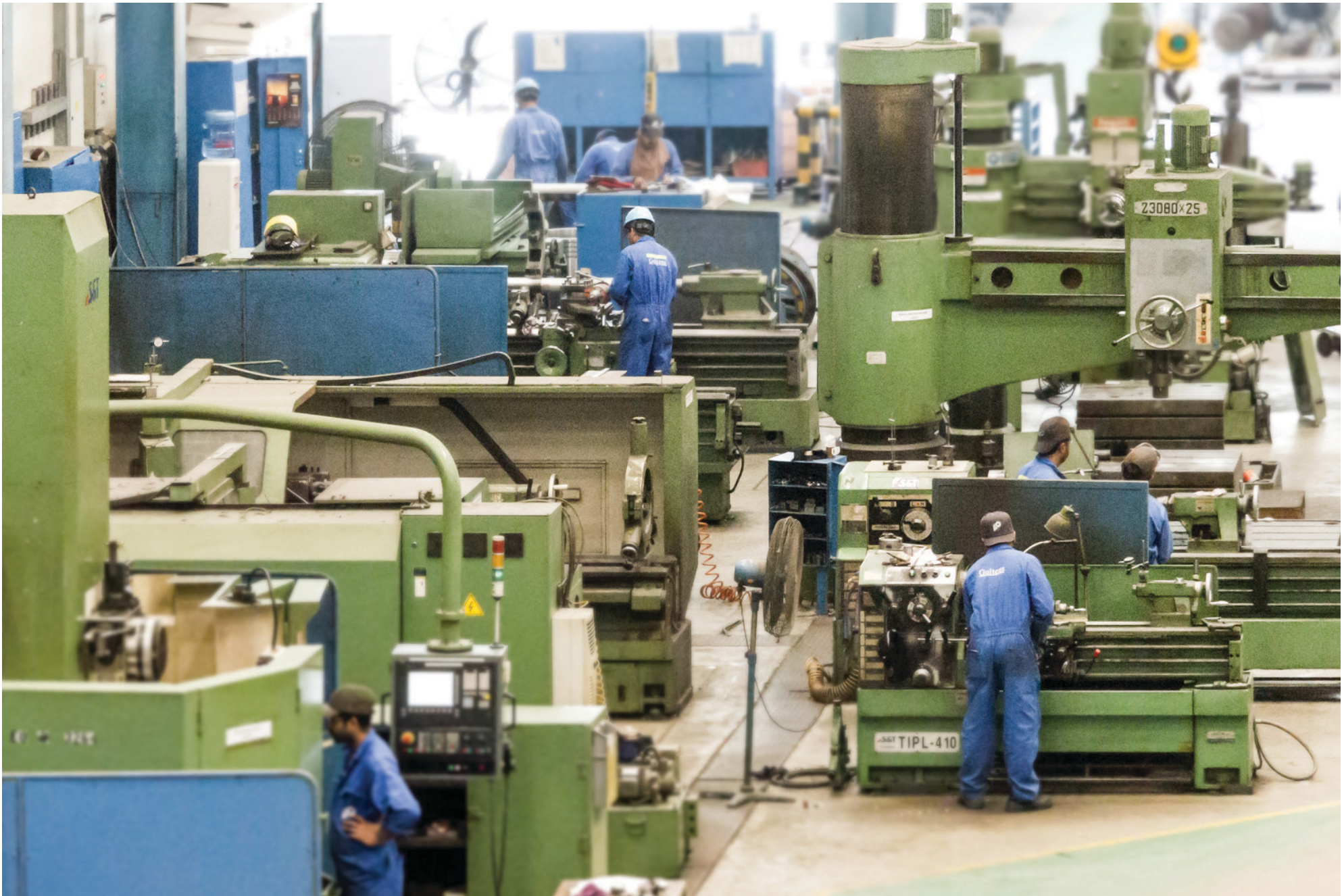

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The impressive machine shop at Goltens Dubai.

Their core business comes from marine diesel engines, from which they will be working on the engine parts, turbochargers, and fuel equipment.

This is just the bait on the hook, and from marine diesel engines they can go on to work on governors, actuators, controls, turbines, and retrofits. In-situ services such as crankshaft/

journal machining, heat treatment/annealing, large flange facing, laser alignment and metal stitching. Green technology solutions such as ballast water treatment, and sulphur emissions control. Docking and afloat repairs such as hull & tank treatments, welding, fabrication, and HVAC.

Their electrical, mechanical, hydraulics and automation workshops give them the capabilities to sweep up all the motor & generator rewinds and repairs. Gearboxes, pumps, condition monitoring, or vibration analysis... you name it, they can do it!

So as you can see, there is very little they can't engineer, but in the essence of speed they also have OEM stock resources ranging from spare engine parts, and motors, to marine grade kitchen units.

All this comes together to create incredible economies of scale for shipping and marine companies, coupled with strategic workshop locations around the globe, makes for a successful company formula.

Control Systems

Roy is among 1300 employees, many



Arif Mansoor, Manager of Electrical and Automation

of whom are on the shop floor, or offshore vessels. Keeping on top of the training, and health and safety of staff is something they take very seriously. With Quality systems 14001 (Environmental), 18001 (Health & Safety) and 9001 (Quality Management) in place, there is a lot to manage.

Thomas Kurien, HSE advisor, explains how such effective systems are managed; "Every week all the management call together a Toolbox Talk. This focuses on production topics, and reminders on health and safety. It means that the management are very much aware of what is happening on the shop floor, and therefore able to manage the personnel effectively and safely."

The toolbox talk incorporates a full risk assessment; where are they going, what dangers are they likely to meet, and how can they mitigate them. Any new procedures that come up can be added to the corporation's Quality Health and Safety Manual, an extensive resource for all employees. For example, a new job comes in requiring the opening of a vault door – all the procedures and safety checks will be logged for future reference. Any time there is any incident it is quickly brought to

the management's attention, so it can be learnt from. Once understood, it is brought to the wider company's attention (as a Safety Alert), and the incident recorded.

Workshops

Having met with Roy and Thomas, it is Arif Mansoor, Electrical & Automation manager, who gets to show off the plants facilities. We only covered half the site, but from what was shown, it's clear that a lot of the work can be managed themselves.

Reaching the rewind workshop 6 gleaming red Ex motors are lined up ready for shipping to an offshore rig. Apart from the normal maintenance, repair, overhauling services, the rewind workshop is a fully equipped facility for the rewinding of high and medium voltage (up to 11kV) motors and generators. They have a combined lifting capacity of 16 ton, and one of the largest VPI tanks in the region.

Their most impressive workshop spans the length of the warehouse, with an impressive array of machining and reconditioning tools for handling the enormous piston heads, crankshafts and cylinder heads that come of the diesel engines. ■

Their electrical, mechanical, hydraulics and automation workshops give them the capabilities to sweep up all the motor & generator rewinds and repairs. Gearboxes, pumps, condition monitoring, or vibration analysis... you name it, they can do it!