

# NILSEN REVIEW

2013 ISSUE 21

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Nilsen is the choice for Hospitals around Australia



**NILSEN CONTRACTING**  
Still leading the way  
in new technology

Image by Denton Corker Marshall | Architects

**NILSEN - AUSTRALIA WIDE**

# From the MD

As with previous years we have continued to focus on maintaining the high standards of workmanship and professional delivery to our customers. By focusing on this we believe it will enable all of the parties involved in the work we do, our customers, our people, our partners and suppliers to benefit and continue to be chosen year after year for all facets of work.

There is no doubt that the last 12 months have been extremely interesting across a broad spectrum of the Australian economy and this has influenced the Construction Sector significantly. I think I have heard the phrase "toughest I have ever seen it" more times in the last 12 months than ever before.

At Nilsen we have responded to this environment by aligning our businesses where we can add value and provide some initiative and certainty to our customers and also made internal changes within the businesses to ensure we remain competitive.

Again this year we have seen a number of people changes and we welcome the newcomers to the business, especially to those who have taken on new challenges around the country, whom in many cases have been promoted from within the group. As a company we continue to employ apprentices and to encourage training of both the technical and non technical skills within the industry.

There have been, as always, some very interesting and exciting projects undertaken in the last twelve months. I trust you will find something of interest on the following pages and that if we haven't worked with you this year that we will in the years to come.

**Mark Nilsen, Managing Director**



**NILSEN  
EXCELLENCE –**

# Why Nilsen is still the one to beat

**When it comes to customer satisfaction, Nilsen are the ones to beat. With new technologies continually being developed to achieve better results, greener outcomes and cost reductions, our clients couldn't be happier.**

Here are some of the projects Nilsen have been working on over the past year including exciting awards and new technologies.



MCG underground water treatment facility.



## Nilsen awards for 2013

### Master Builders Award for excellence

**in construction** – Darwin is replacing its traditional overhead switchyards with a newer technology utilising enclosed equipment with SF6 switchgear. Nilsen has gained this prestigious award for our Woolner Zone Substation project.

*Nilsen were recognised in various categories at the recent NECA Victorian State Awards in winning three (3) awards:*

**Commercial Large Project** – Winner for Next DC Data Centre and Nilsen also received a Certificate of Commendation in this category for the Melbourne Markets Relocation.

**Industrial Small Project** – Certificate of Commendation for Yarra Park (MCG) Recycled Water Treatment Plant.

**Apprentices** – Pat Mammone was the won the Victorian State Industrial Award and Michael Lawton received 3rd place in the Commercial Award.

## Nilsen lands corrective services project

We're completing a major project for the Northern Territory Government, the Darwin Correctional Facility. It's the sort of work where our reputation for performance on time and on budget gets us chosen. Our switchboard people have been busy manufacturing main switchboards, indoor and outdoor distribution boards as well as communication distribution boards – all to a very tight timetable.

## Nilsen cuts your energy costs

We pride ourselves in our capacity to help our clients achieve highly cost-efficient electrical infrastructure, for example by cutting the cost of electrical energy through the provision of power factor control and harmonics mitigation. Both are of growing importance with the price of electrical energy likely to continue increasing, and the imposition of maximum demand tariffs. Harmonics are also adding increasingly to energy bills.

Nilsen Engineering Services has the expertise to design reliable power reticulation systems that take account of the demands of commercial, and industrial electrical installations that achieve high energy efficiency as well as the highest levels of reliability.

## Nilsen goes to sea (almost)

Dry-docking is not just for scraping barnacles off hulls and painting – Nilsen Engineering Services attends to a host of electrical equipment while ships are in dry-dock at the Port of Brisbane. The list of high-energy gear serviced is impressive, including protection gear, generators, motors, and thrusters.

## Eco-friendly Nilsen

We know about water treatment and our experience, gained over many projects throughout Australia, has us doing the complete electrical, communications and instrumentation installation for the Melbourne Cricket Ground underground water treatment facility. It is Victoria's largest underground water recycling facility, located in Yarra Park, adjacent to Gate 2 at the Melbourne Cricket Ground (MCG).

As one of the first of its type in Victoria, the plant has been built underground to preserve

valuable surface land use and park amenity. More than 180 million litres of recycled water will be produced each year and re-used primarily as irrigation in Yarra Park and at nearby Punt Road Oval, as well as for cleaning and toilet flushing at the MCG. The plant reduces the use of potable water by 50%!

## Engineering Service

Strategic maintenance is not an empty term. We understand the critical requirements of availability of production plant, commercial properties and other facilities of its customers and in consultation with them, designs cost-effective maintenance protocols.

Our strategic philosophy identifies priorities such as essential areas, and economic life limitations of plant including reticulation, protective gear, connected loads and auxiliary equipment. Our years of experience with major organisations in extractive, manufacturing, infrastructure, commercial and governmental industry sectors, provide our customers with maintenance policies and schedules that are truly cost-effective in the largest sense of the word.

We are highly experienced with testing transformers and investigate problems that can be traced to the interaction of the oil with the insulation materials of the windings. By-products of the chemical processes result in moisture production and eventual breakdown of the insulation integrity. To investigate this we carry out tests on transformer oil including dielectric breakdown and power factor analysis.

# When experience matters



One of 50 Westfield shopping centres around Australia that Nilsen maintains.

## Maintenance networking – Nilsen at the cutting edge

**Nilsen is highly experienced in providing an array of maintenance services for contemporary retailing. For some 50 Westfield shopping centres, we provide the full gamut of electrical and communications preventive maintenance, throughout Australia.**

Power factor correction (PFC) equipment is one crucial area for shopping centres because of the very large number of connected loads, including IT equipment and electronic ballasts exhibiting poor power factor. The consequence of not maintaining PFC equipment, quite apart from interruptions to internal supply, is increased energy prices through exceeding maximum demand.

For Coles we support 800 sites for their IT requirements, taking care of 'day-to-day' breaks, and are highly regarded because of our rapid response to reliability issues.

We share Costa's passion (Fresh is Our Passion) for service. The Australia-wide fruit and vegetable wholesaling group has 55 sites around Australia and relies on Nilsen to provide the integrity of the Group's IT and VoIP systems.

## Keeping our clients running

**Our expertise for service and preventive maintenance has earned us an enviable record for excellence. We work for the largest corporations but always apply the same care in planning and performing our tasks whatever the size of the plant we are charged with to keep running smoothly.**

The scope of our services is broad as well as deep including:

- High and medium voltage reticulation testing and maintenance
- Transformer testing and maintenance
- Protective equipment testing and service including, where necessary, rebuilding
- Thermographic analysis
- Protective relay testing

The list of companies entrusting us with the maintenance of their production and other assets is large, spreading through all States and Territories. We are currently engaged by

- Westfield
- Colonial First State
- Santos
- Pacific Fair shopping centres
- Gladstone Port Corporation
- Myer
- Castle Plaza
- Adelaide airport



Hope Downs 4 Transportable Substations



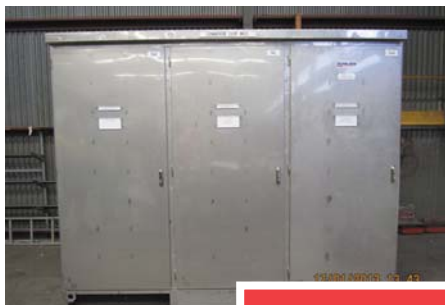
# Nilsen in Mining and Exploration

Our expertise in transportable sub-station, switchboards and motor control centres is one important reason why we continue to be selected for major mining projects like Rio Tinto's Hope Downs 4 and Cape Lambert Port B. Nilsen are contracted to design, construct, assist commission and deliver to Rio Tinto, the substations and the switchboards for Hope Downs 4. The Hope Downs iron ore mine where we are currently engaged produces well over 31.4 million tonnes per annum and the Hope Downs 4 expansion project stands to potentially increase this figure by approximately another 30 million more tonnes per annum. The substations included 415V Motor Control Centres, Distribution Boards, 6.6 KV Switchgear (Nilsen manufactured), 33 KV Switchgear, Communications, UPSs, Fire Protection and HVAC.

Nilsen has also been awarded the contract for the supply of low voltage switchboards for 9 Cape Lambert Port B substations. The quality and timing of delivery of the previous boards supplied to Cape Lambert was a deciding factor in the successful award of this project.

## Nilsen delves into black gold

The Port of Gladstone is Australia's main coal loading port. We have been over the years a major contractor to the port, and have this year shipped a very significant number of stainless steel outdoor switchboards, local control stations, as well as motor control centres for the conveyors and ancillary equipment. The latter are equipped with Programmable Logic Controllers (PLCs). In the area of PLCs, our engineering expertise stands us in good stead, and our capability to efficiently install and commission controls has gained us important projects in the extractive and materials handling industries.



Stainless steel outdoor switchboards.



# NILSEN CONTRACTING – Still leading the way in new technology



New Telstra datacentre during construction.

## Nilsen in the Cloud

We are an integral part of Telstra's brand new cloud-computing centre now being constructed in Clayton, Victoria.

Telstra's cloud computing strategy will cater to business, enterprise, and government customers that prefer using local cloud services because of secure access.

The datacentre will be integrated into Telstra's Next IP and Next G networks. The new Telstra Centre will have absolute secure power via diesel flywheel-static UPS (DRUPS) technology, and 2N+1 redundancy provided in part by 2, 10 MVA feeders. The electrical system reticulation arrangement is being designed and built to be concurrently maintainable without impacting the operation of the IT datacentre equipment that it is supplying.

The scope of the project is huge comprising of 4 DRUPS plant rooms, 2 stand-by generators plant rooms, 6 main switchboards, 2 generator switchboards, 16 UPS output switchboards, supervisory control and data acquisition (SCADA) systems, lighting, communication, and security systems.



Artist impression – Telstra Data Centre.



Pawsey Super Computer Centre building.

## Nilsen heads for the stars

We've just completed the electrical infrastructure for a super computer centre crunching astronomically large numbers, from a huge radio astronomy project. A first for us, for the CSIRO and a feather in Australia's cap, leading once again in this hi-tech field.

Named after pioneering radio astronomer, Dr Joe Pawsey, the super computer centre makes sense of a multiplicity of stellar signals beaming into 1 x 1 kilometer array of receiving dishes.

Absolutely reliable power is essential for the super computer centre and the installation of a rotary-UPS system was one of our chief tasks. The UPS system is powered by a battery bank in case of large power interruptions and the rotary flywheel connected to a motor generator provides the ride-thru when there is a power failure, allowing smooth transition to the 600 kVA static UPS.

In addition we installed copper and fibre communication networks, lighting control and emergency lighting.





Australia Pacific Natural Gas' (APNLG) water treatment plant.

## Innovation in computer rooms and critical applications

Our contracting teams have special expertise in essential applications. A good example is the provision of controls, instrumentation and uninterruptible power (UPS) supplies for Australia Pacific Natural Gas' (APNLG) water treatment plant at Condabri and Reedy Creek.

Installing Computer Room Air Conditioning (CRAC) requires the sort of experience we have acquired by being involved in cutting edge IT projects. Under floor cable laying, hot and cold aisle layouts, understanding the requirements of reliable redundancy for UPS, are the areas where you can count on Nilsen. And not only can we take charge of the electrical, electronic and communication side, but as is the case with APNLG, we took charge of the buildings housing the equipment as well.



## Essential IT for Interactive

The people at Interactive need their IT facility in Port Melbourne 24/7 and that's where we come in. Nilsen are providing massive 2000 kVA sub-station transformers, diesel generators, 4 static UPS systems providing tier 3, N+1 redundancy, all switchboards, automatic transfer switches, power distribution units for the server rooms, all data cabling in copper as well as fibre, lighting and fire control. The new facility is a continued investment to support the demand for Interactive's cloud computing and managed services and will support an additional 300 staff following completion.



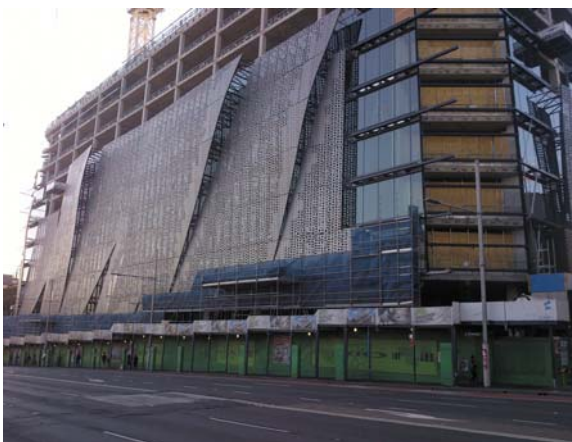
Interactive building, Port Melbourne



University of Technology, Sydney internal crevasse and stairs.

## MAJOR TERTIARY EDUCATION PROJECTS –

# Universities thrive on Nilsen's new technologies and expertise



University of Technology, Sydney external facade.

### University of Technology, Sydney – New Faculty Buildings

The University of Technology, Sydney (UTS) has ambitious expansion projects and Nilsen has been selected to complete a large range of electrical installation works. The new buildings of the Faculty of Engineering and Information Technology being constructed on the Broadway Campus will showcase Nilsen's expertise in major electrical installations. The scope is impressive, as it encompasses the fit-out of tristate generator plant, substation, main switchboard and power factor correction equipment.

In addition to the Broadway Campus, UTS is also expanding its Thomas Street site in Sydney where the new Faculty of Science is being constructed. The new building has 8 storeys, and 3 basement levels and has a total floor area of almost 14000 square metres. In addition to teaching and research facilities, there will be a large library with automatic retrieval systems. Nilsen is responsible for audio-visual, lighting control, diesel generator and UPS systems.





View from campus walk.

## Monash University Green Chemicals Futures Building – Clayton Campus Melbourne

The Green Chemical Futures (GCF) Project will be a benchmark, multi-level design facility at Monash University's Clayton Campus, achieving a 5-star Green Star Design and As-Built rating.

It will support the academic and industrial research within the chemicals sector in Australia and will provide world-class research to expand Australia's 'green workforce'.

Green Chemical Futures will house over 100 chemists and engineers and will allow the growth of basic science research to targeted industry driven research. It will have 17 specialist sectors, training programs for industry practitioners and new laboratory spaces available for over 1000 students and 100 industry partners.

The lower levels of the building will contain teaching and learning spaces and the upper floors will house research and translational facilities, with double-height foyer and voids spaces linking the levels and collaboration spaces throughout.

Nilsen's strategy in aligning itself with Tier One Builders, Lend Lease for this project and with our understanding of their needs especially when it comes down to their "Global Minimum Requirements" in reporting and safety was one of the main criteria of Lend Lease in awarding Nilsen the contract.

Nilsen will carry out all electrical works, communications, fibre, lighting control, security system, AV systems and switchboard manufacture.

# Nilsen win new defence contract

The Defence Logistics Transformation Project at Moorebank, NSW is being extensively modernised and Nilsen has been selected because of its expertise in strategically important projects. The scope of work is impressive – 5 kiosk transformers, high voltage reticulation, main switchboard, communication backbone and LV power and lighting.

Our excellent record has once again been responsible for continuing works at the Enoggera and Lavarack Barracks. The sensitive nature of defence communication requires our highly accredited installers. The 5th Aviation regiment in Townsville operates Black Hawk, Chinook and MRH-90 helicopters. We are working currently on the MRH-90 pilot training simulation unit. This is a critically important part of not only defence but for missions where the Army is called in for civil rescue work.



Defence Logistics Transformation Project at Moorebank



Enoggera barracks.



New Royal Adelaide Hospital.



## HOSPITALS & MEDICAL RESEARCH

# Nilsen is the choice for Hospitals around Australia

In Western Australia, Victoria, Queensland, in fact all over Australia Nilsen is the preferred electrical contractor when it comes to the all-important matter of reliable electrical power for essential health facilities.

### New Bendigo Hospital

For the new Bendigo Hospital, Nilsen is carrying out extensive electrical works including a 'first' for Category 1 hospitals, a diesel-rotary UPS system (DRUPS), which will assure electrical supply 'no matter what'. Because of the rotary energy stored in a flywheel, there is a smooth transition for the diesel generator to 'kick in' in the event of an interruption to electricity and there are no dangerous interruptions to hospital power no matter how small. The Bendigo Hospital will ensure the delivery of much enhanced health services to the Loddon-Mallee Region for many years to come and will be expanded to include an integrated regional cancer centre as well as a new psychiatric inpatient unit. Our scope of supply is large and in addition to the DRUPS, will also comprise of a generator, stand-by generators, high voltage and low voltage switchboards, communication and data networks in copper and fibre, as well as cardiac monitoring, and nurse call systems.

### Fiona Stanley Hospital

Fiona Stanley Hospital is the biggest and most complex public tertiary health facility ever to be built in Western Australia. The huge project is nearing completion and the hospital will be admitting patients within 12 months. The scope of work covers the IT and communication systems, UPS systems, distribution and

reticulation, lightning protection, medical earthing and leakage protection as well as intelligent lighting control. A very advanced feature, which Nilsen is supporting, is the ELVS system integrating nurse call, duress and paging, IT and communications.

### New Royal Adelaide Hospital

Nilsen is currently undertaking its largest contract in its history to provide Electrical and Integrated Communication Services to the New Royal Adelaide Hospital. The scope includes high and low voltage reticulation, light, power and communication services all supported with critical power generation and UPS support. The contract award is testimony to Nilsen's growing expertise within the healthcare sector, and our ability to deliver specialist services to major projects across Australia

The new Royal Adelaide Hospital (new RAH) will be one of Australia's most technologically advanced hospitals and is the single largest infrastructure project in the State's history. It is expected to employ close to 6,000 people and accommodate 85,000 inpatients per year. The 10 hectare site is set among the parklands at the west end of Adelaide's CBD.

The \$1.85 billion hospital is due to be completed in 2016 with 120 more beds than the existing RAH, an emergency department that can treat

an additional 24,000 patients each year and 40 supersized operating theatres. The complex will include a retail precinct, gym and crèche. Parking for 2300 cars will be accommodated on site, with the majority underground. The building will have an emphasis on green spaces, amenities and internal gardens. Space has been allocated on the western side of the site for future expansion.

The virtual world of electrical contracting is being used and further developed at Nilsen. Take the new Royal Adelaide Hospital, a massive project on the corner of North and West Terraces in Adelaide's CBD. Once in operation, some time in 2016 it will be an 800-bed hospital. Nilsen engineering personnel are on site and checking the most detailed parts of the electrical installation using three-dimensional models of the buildings and special surveying instrumentation to 'pace out' where main switchboards, risers, control panels, etc are going to be placed. And the complexity of new Royal Adelaide hospital is huge. There will be eight substations, sixteen transformers, multiple ring mains, twenty main switchboards, six hundred plus switchboards, two data centres, and over fifty floor sub-distribution panels.



Sydney Airport

Above – New Bendigo Hospital.  
Below – Royal Adelaide Hospital Construction.



## Supporting hospitals Australia wide

We keep a very large range of hospitals running, power continuity being critically important. We are entrusted with the task of repair and regular maintenance of public and private hospitals. It is a long list that bears testimony to our reliability for solid performance. Our clients include:

- Mackay Base Hospital
- Sunshine Coast Private
- Royal Adelaide
- Queen Elizabeth
- St Andrews
- Modbury
- Frankston
- Mercy Werribee
- Casey

# Nilsen lands major airports

We are currently engaged in major construction and maintenance works at Australia’s busiest airports, Melbourne and Sydney. Constant expansion of facilities to cater for continuously increasing demands imposed by freight and passenger traffic flows necessitate both extending and ‘hardening’ of electrical reticulation systems and expert attention to maintenance, in particular strategically-oriented preventive maintenance. At Sydney Airport, Nilsen undertakes transformer oil tests, protective relay testing, upgrading and replacement, protective gear inspection and maintenance. The comprehensive scope of our work also includes baggage handling systems.

At Melbourne Airport we have been chosen to carry out a massive upgrade including high voltage and low voltage reticulation, instrumentation and controls. The scope involves a total of 12 megawatt of generation providing 100% of the non-essential power requirements of the airport, high voltage switchgear, motor control centres and programmable logic controllers.



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