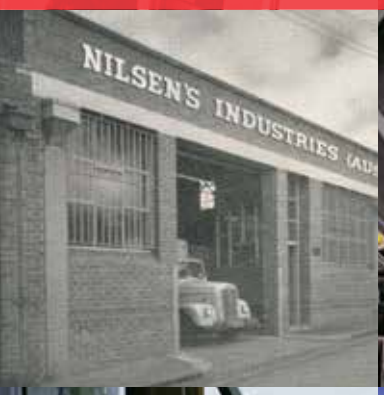
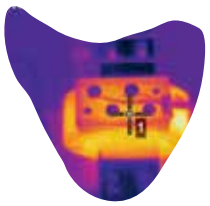
NILSEN
ESTABLISHED 1916

# CONNECTED TO THE PAST, TRANSFORMING THE FUTURE.







**CAPABILITY STATEMENT**

www.nilsen.com.au

EST. 1916


# THE COMPANY

Virtually since Federation, Nilsen has been designing, constructing and maintaining the electrical assets to power Australian business, government and instrumentalities. Consequently Nilsen occupies a strategic place in the Australian electrical industry and has earned the respect of competitors and customers alike for the quality of its work and its integrity. We are proud of our company, and we strive to give of our best whether projects be large or modest in scope.

# IN OVERVIEW

We are a national company specialising in electrical engineering and contracting; preventative maintenance, service and refurbishment of electrical assets; and data communication and control. Our design, construction, contracting and service offices are located in all Australian states and the Northern Territory as well as in major mining and industrial hubs.

We have the manpower, facilities, and financial strength to undertake major projects – our record for on-time and on-budget performance since 1916 speaks for itself. The size, degree of technical complexity, and imaginative solutions to challenging conditions have gained us recognition with many industry awards.

## Our client base encompasses:

- Hospitals and Medical Research
- Mining, Beneficiation and Smelting
- Ports and Loaders
- Airports
- Scientific and Educational Facilities
- Infrastructure, Roads and Tunnels
- Defence and Security Installations
- Commercial, Theatre and Entertainment Complexes
- Shopping Centres
- Data Centres
- Commercial and Hospitality
- Warehousing and Distribution



## Coles Wireless Access Point Rollout

Nilsen Networks were engaged for the installation of wireless access points in 720 stores across Australia within a tight six-month schedule.

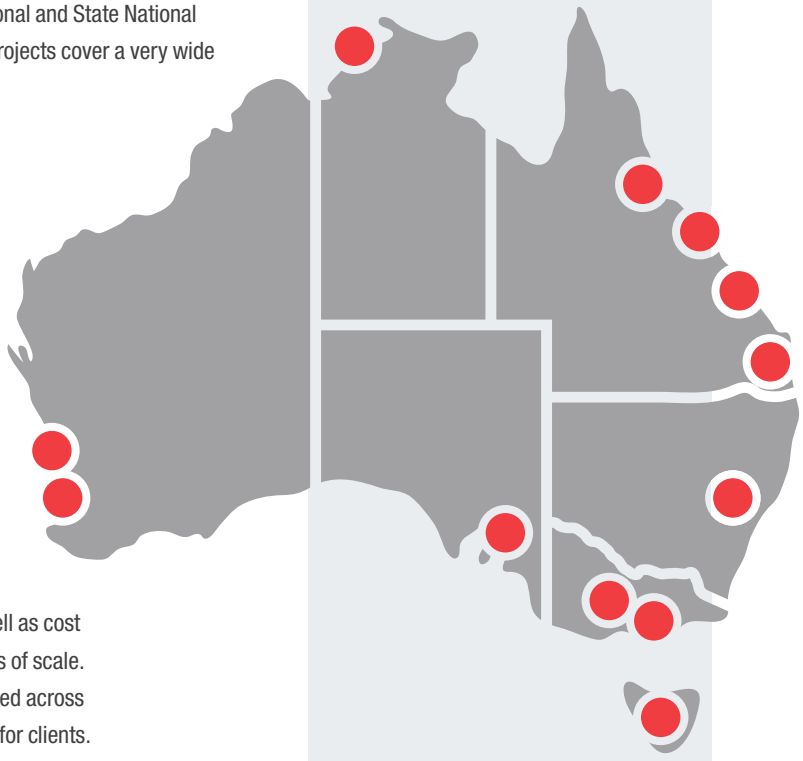
**Find out more on page 17.**

# A NATIONALLY RECOGNISED COMPANY

In the last twenty years, Nilsen has been awarded some 130 National and State National Electrical and Communications Association (NECA) awards. The projects cover a very wide range and illustrate the scope of our services and expertise.

# NATIONAL ROLLOUT

Nilsen's network of Australia-wide offices and workshops makes us the first choice for national rollout projects. We carry out projects covering many states and territories in a highly efficient manner and with value-engineered solutions for our clients. Transport costs, as an example, can be minimised by arranging construction and other services close to client sites. Technical documentation, design and construction methods are instantly shared by the various project sites preventing misunderstandings and consequent delays as well as cost overruns. Standardisation of materials provides further economies of scale. Project management, progress reports, cost analyses are integrated across the Nilsen facilities making reporting and accounting transparent for clients.



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## Royal Adelaide Hospital

Nilsen are undertaking the electrical and communication services works on the new Royal Adelaide Hospital Project.

**Find out more on page 13.**

# AREAS OF BUSINESS

Nilsen provides comprehensive design, contracting, installation, commissioning, repair, and maintenance services for a large scope of applications.

**These include:**

- Switchboards and motor control centres
- Control panels, programmable logic controllers
- Industrial buses, distributed control and instrumentation
- Mission-critical systems, stand-by generators
- Computer and server room installations
- Energy management and demand control
- Tri-generation and co-generation systems
- Solar photovoltaic systems
- Medium and high voltage distribution
- Underground cabling
- Roadway and tunnel lighting
- Traffic signalling
- Emergency systems, lighting
- Fire control systems
- Marine AC and DC reticulation
- Building management systems
- Lighting and access control
- Fibre and copper communication networks
- Patient monitoring and nurse call systems
- National rollouts
- Preventative maintenance

Defence Logistics Transformation Project at Moorebank.

# ENGINEERING SERVICES INCLUDING SPECIALIST MAINTENANCE & REFURBISHMENT

Nilsen is a partner of the worldwide TEGG Service alliance, providing preventative maintenance programs for electrical assets. TEGG programs are designed to minimise unplanned downtime and utilise state-of-the-art analytical protocols.

**Our services include:**

- Thermography, oil testing and ultra-sound diagnostics of electrical distribution and sub-distribution assets
- Testing of control relays and coordination
- Repair and preventative maintenance of switchgear, transformers, motors and other plant
- Refurbishment and rebuilding of switchgear
- Specialist installations (pilot plants, research facilities, sterile laboratories, institutes of higher learning)

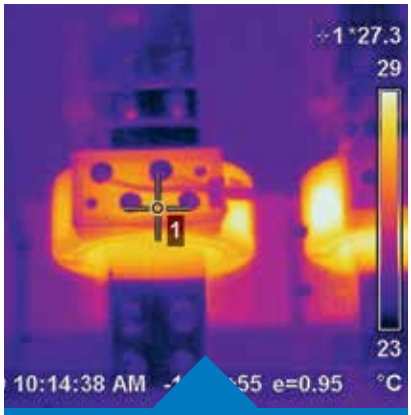


## Sydney Airport Tegg Preventative Maintenance

Nilsen Engineering Services has undertaken a major preventative maintenance program on behalf of SACL at the Sydney international airport.

**Find out more on page 19.**

“Nilsen is a partner of the worldwide TEGG Service alliance...”




Preventative Maintenance Thermographic & Ultrasonic Scanning (TEGG).

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Rio Tinto
Hope Downs

Nilsen provided 10 transportable sub-stations, switchboards and field marshalling boxes.

**Find out more on page 18.**

# CONTRACTING

We work to specifications, agreed time lines and budgets. Nilsen have the experience to assist clients in the project conceptual stage by working with builders and consultant engineers so that an effective interface is established, and in operation, when a contract is finalised.

Mechanical and electrical engineering is a complicated business when large projects are involved. Nilsen employs highly sophisticated computer aided design techniques to visualise electrical installation designs of great complexity in buildings yet to be constructed. This has great advantages, such as highly accurate quantity estimation instead of applying safety margins to allow for shortfalls in materials. Importantly, headache-free construction proceeds smoothly without unpleasant surprises or project overruns in time and money.

Once a project is awarded we adhere to a project delivery framework governing all aspects of the project and the operations of Nilsen personnel on client sites, ensuring a smooth transition to the execution process. Effective communication throughout the project stages is one of Nilsen's strengths.

> “Effective communication throughout the project stages is one of Nilsen's strengths.”



**Defence Services**
RAAF Base.

# SAFETY & ON-SITE PERFORMANCE GO HAND IN HAND

Nilsen people are amongst the most highly qualified and trained in the industry. Safe working practices training is embedded in the most fundamental way, providing a significant competitive advantage in that our processes of site assessments and methods result in an environment where client and contractor can work safely and effectively.

We are award winners in Occupational Health and Safety, and continuously drill our operative personnel in both procedures and behaviour. It is all part of the professional approach that infiltrates everything we do.

> “Nilsen has an advanced company-wide safety system accredited to AS 4801

TQCSI AS 4801:2001 Safety Certified AU999C-QC-SC

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# SWITCHBOARDS & MOTOR CONTROL CENTRES

Nilsen switchboards and motor control centres are designed and built for standard conditions and the most challenging of environments such as corrosive atmospheres, high temperature and dust. Special applications are catered for such as switch room assemblies for remote port and mining areas. Modular designs provide for expandability and future proofing.

Nilsen switchboards and motor control centres are extensively type-tested to relevant Australian and international standards. Nilsen switchboards, depending on applications, are tested for arc fault containment and temperature rise. Our designs are recognised for their high level of safety in accessing components, segregation and ease of service.

Nilsen switchboards answer to safe access and intelligent lay-out requirements including easy front and rear cable access to cells, generous cable ways along the entire board length, multiple cable gland plate entry positions as well as allowing for unfettered access for future extensions.

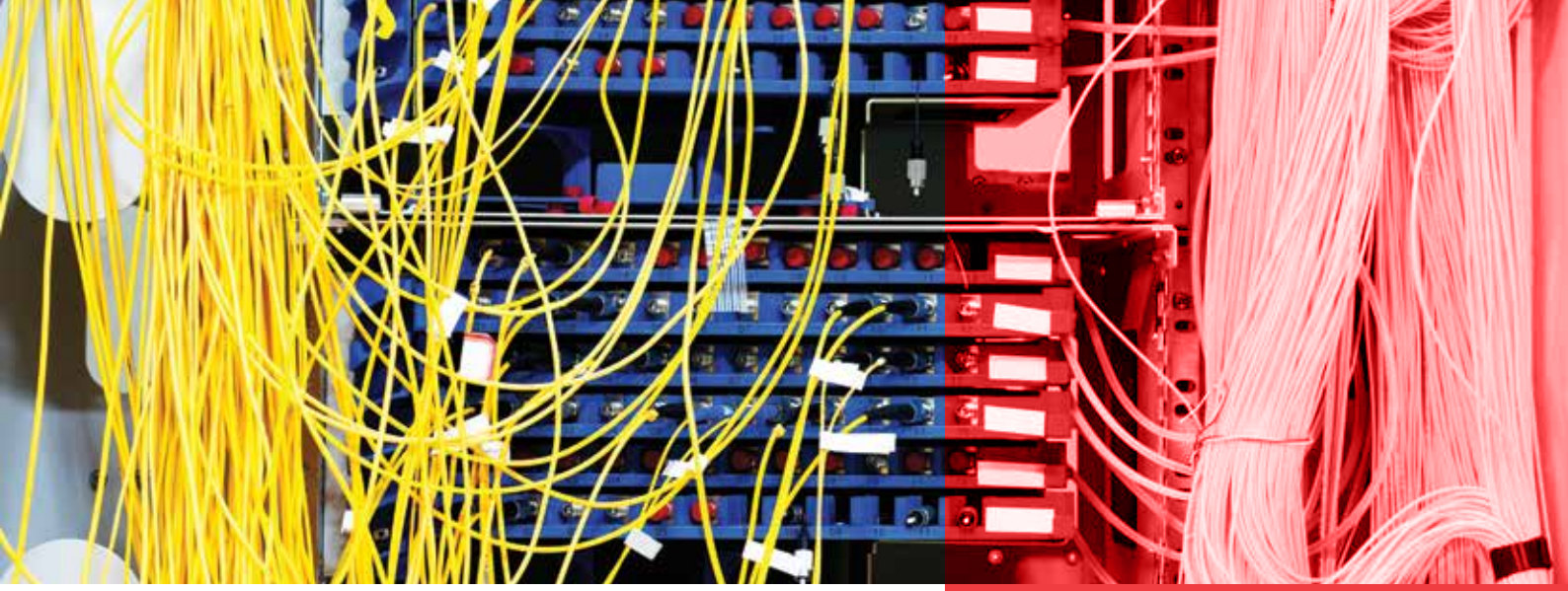


## Fiona Stanley Hospital

Nilsen provided electrical works including LV switchboards, UPS systems, distribution and reticulation, lightning protection, medical earthing and leakage protection as well intelligent lighting control.

**Find out more on page 14.**

TQCSI ISO 9001:2008 Quality Certified AU999C-QC-SC



# MAINTENANCE SERVICES

Nilsen provides a broad array of preventative maintenance, emergency repair, refurbishment and modification and specialised project construction in low, medium and high voltage applications. Nilsen provides a highly effective, single company solution incorporating specialist skills, record keeping and plant performance data in-house.

Nilsen maintenance proposals take into account useful asset life, and cost-effective maintenance procedures as well as ensuring that installations comply with statutory requirements. Nilsen tailors maintenance schedules, identifying priorities such as mission-critical functions and take into account economic life limitations of plant equipment.

“Nilsen provides a highly effective, single company solution incorporating specialist skills, record keeping and plant performance data in-house.”

# DISTRIBUTION SYSTEMS & ASSETS

Nilsen provides high-energy maintenance work requiring special certification. We have an excellent record for expertise and reliability in maintenance work on distribution lines, and sub-stations including service of protective relays and associated switchgear.

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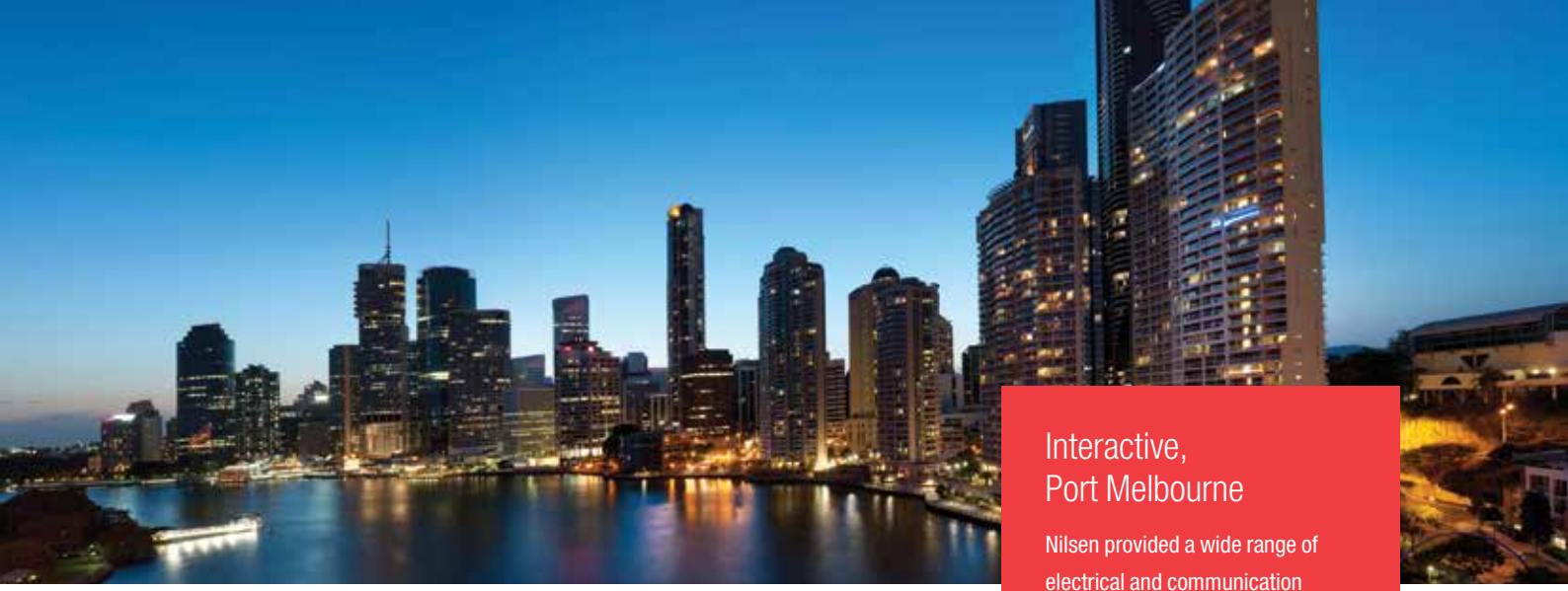
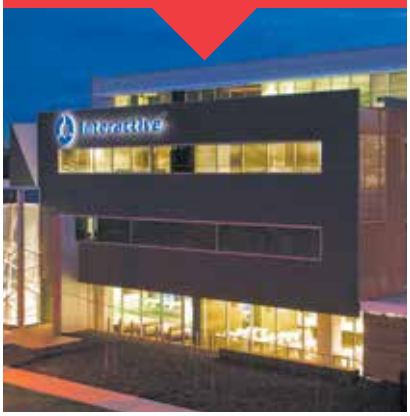


## Interactive, Port Melbourne

Nilsen provided a wide range of electrical and communication services for Interactive's IT facility in Port Melbourne.

**Find out more on page 16.**

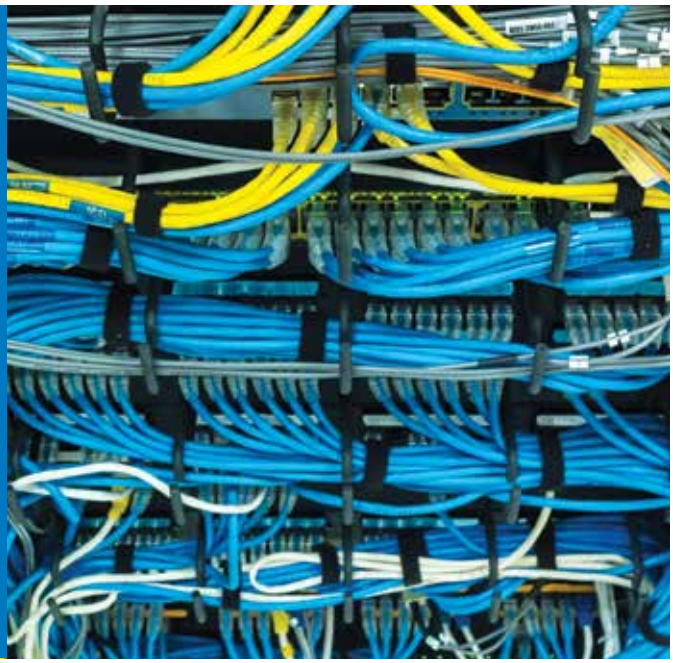



# ENERGY MANAGEMENT

Nilsen conducts energy usage surveys and on that basis provides management reports with specific recommendations on high efficiency lighting, lighting for critical work areas, and lighting control. Areas of high energy consumption are identified and compared with standard energy usage patterns including heating, ventilation and air conditioning. Complete energy management systems can be designed to suit many applications including commercial, educational, hospital and other complexes.

# COMMUNICATION & CONTROL

Nilsen's design and engineering teams easily transition from the conceptual stage of networks to the most cost-efficient design realisation to meet the client's communication requirements of banking, other financial institutions and hospitals as well as industrial and commercial organisations. Backbones such as Ethernet, structured cabling, and specialised industrial buses, in fibre or copper are all an integral part of Nilsen's expertise.



# APPRENTICESHIP STRATEGY

On average Nilsen directly employs 150 full time electrical apprentices and an additional 40-50 apprentices through organisations such as Group Training Australia.

We believe career development plans are important for retaining completing apprentices and new tradespeople. Nilsen's systematic approach to workforce development assists apprentices in their progression to a career, which is important for individual development and also for the organisation's business survival and growth.

**By implementing these strategies we create an environment in our business where:**

- Skills are retained and experience can be optimised
- New skills and technology are developed in response to changes in the industry
- The potential impact of skill shortages in the Nilsen organisation and the electrical industry can be more effectively managed

"Nilsen's strong commitment to the career development of our apprentices secures the future of a skilled workforce and growing industry."

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## Abbot Point Coal Loader

Nilsen provided the electrical design, supply, installation and commissioning of the electrical machinery and control systems.

**Find out more on page 16.**



# DOING BUSINESS WITH NILSEN

We aim to thoroughly understand all important facets of a client's project or job. The more extensive the project, the more comprehensive the conceptual phase is during which period Nilsen personnel can be assigned to be an effective interface between the client and the company. We can thus ensure that requirements are not only met as to specifications but that these also meet the functional needs of the client.

We know that cost is an important element in the consideration of quotations and tenders. Our approach to costing is therefore guided by both transparency and integrity. Transparency provides prospective clients with sufficient detail to examine not only our offer but to also probe more deeply into other offers. Integrity requires that we highlight potential problems in specifications so that the client is made aware that some functional requirements might not necessarily be met. Our ultimate aim is the complete satisfaction of the client. It is the way we have been doing business since 1916 – and the way we would like to do business with you.

> “Our ultimate aim is the complete satisfaction of the client. It is the way we have been doing business since 1916 – and the way we would like to do business with you.”

# AUSTRALIA WIDE

## Projects & Services


> Designed to embrace the surrounding parklands, on completion it will be the largest, most technologically advanced hospital in South Australia and one of the most advanced in Australia."

**Key services:**

- 8 substations
- 16 transformers
- Multiple ring mains
- 20 main switchboards
- 600+ switchboards
- 2 data centres
- 50+ sub-distribution panels



### Royal Adelaide Hospital

**South Australia**

**Nilsen are undertaking the electrical and communication services works on the new Royal Adelaide Hospital project. The 10 hectare site is located in Adelaide's west end linking the city along North Terrace. Designed to embrace the surrounding parklands, on completion it will be the largest, most technologically advanced hospital in South Australia and one of the most advanced in Australia.**

The work performed by Nilsen includes high and low voltage reticulation, light, power and communication services all supported with critical power generation and UPS support.

There will be 8 substations, 16 transformers, multiple ring mains, 20 main switchboards, 600 plus switchboards, 2 data centres, and over 50 floor sub-distribution panels.

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> Fiona Stanley Hospital is the largest building project ever undertaken for the Government of WA."

## Fiona Stanley Hospital

**Western Australia**

**Fiona Stanley Hospital is a new state government hospital and teaching facility in Murdoch. The hospital is the largest building project ever undertaken for the Government of Western Australia.**

Nilsen provided electrical works including LV switchboards, UPS systems, distribution and reticulation, lightning protection, medical earthing and leakage protection as well intelligent lighting control. An interesting feature of the installation is the ELVS installation, which integrates nurse call, duress and paging, IT and communications.

> Nilsen ensures the continued safe operation of the MCG during major events."

## Electrical Preventative Maintenance of MCG

**Victoria**

**Nilsen continues to provide ongoing electrical maintenance and operational support for all MCG events, from maintaining lighting, switchboards and all electrical equipment through to match day support during events.**

Working with multiple major stake-holders including the Melbourne Cricket Club, sub-contractors, caterers and the public, Nilsen ensures the continued safe operation of the MCG during major events such as the Boxing Day test match and AFL grand final.


> Specialised assessments include infrared thermography, power factor correction and ultrasonic testing."

## Westfield Preventive Maintenance TEGG Contract

**National**

**Nilsen are currently carrying out a preventive maintenance program for Westfield, utilising the equipment tracking methodology TEGG to test equipment at 42 sites, including shopping centres and office towers across five states. Specialised assessments include infrared thermography, power factor correction and ultrasonic testing.**

As well as comprehensive auditing, analysis and reporting, this project also incorporates a wi-fi roll out to 40 Westfield centres nationally, LED lighting upgrades and an ELCB upgrade to obtain compliance to the new Australian Standards.


> Situated in a major commercial centre at one of the city's busiest transport hubs, Westfield Garden City has one of the largest trade areas among Westfield centres in Australia."

## Westfield Garden City Shopping Centre

**Queensland**

**Westfield Garden City at Mt Gravatt on Brisbane's south-side undertook a mammoth makeover that added 100 new speciality shops and increased the retail space by 40,000m². Situated in a major commercial centre at one of the city's busiest transport hubs, Westfield Garden City has one of the largest trade areas among Westfield centres in Australia.**

The redevelopment also includes a new Myer department store, to which Nilsen were awarded the electrical contract.

Nilsen was responsible for the electrical fit out and refurbishment, including the construction and installation of switchboards, distribution boards, light and power, interactive shopping guide kiosks and extensive ambiance lighting throughout the entire complex.

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> Nilsen's recognition of experience in being able to deliver highly technical data centres..."

## Interactive, Port Melbourne

**Victoria**

**Nilsen's recognition of experience in being able to deliver highly technical data centres was the main selection criteria by Interactive IT Systems and their builder in awarding Nilsen the contract.**

Nilsen provided a wide range of electrical and communication services for Interactive's IT facility in Port Melbourne comprising of 2000 kVA sub-station transformers, diesel generators, four static UPS systems providing tier three, 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.

> These machines are fully automated with their parameters (for stacking or reclaiming) remotely set."

## Abbot Point Coal Loader

**Queensland**

**Situated about 25 kilometres north of Bowen, the Port of Abbot Point is Australia's most northerly coal port. Some 12 million tonnes of coal are loaded annually from the Gregory Coal Basin.**

Nilsen provided the electrical design, supply, installation and commissioning of the electrical machinery and control systems of four stacker/reclaimers for the Ports Corporation of Queensland's Abbot Point coal loading facility. These machines are fully automated with their parameters (for stacking or reclaiming) remotely set.

"Nilsen has been engaged by UTS to provide move in adjustments and alterations requested by the faculty that have enhanced our reputation with the client."

## Faculty of Engineering and Information Technology at the Broadway Campus of the University of Technology

**New South Wales**

**Since our contract completion, Nilsen has been engaged by UTS direct, to provide move in adjustments and alterations requested by the faculty that have enhanced our reputation with the client.**

Nilsen's scope of the works included tristate generator plant, a sub-station, main switchboard and power factor correction equipment and fit-out of lecture theatres, laboratories, faculty offices, boardrooms, etc.


"The teams worked under considerable pressure to ensure the systematic installation, testing and commissioning."

## Coles Wireless Access Point Rollout

**National**

**Nilsen Networks were engaged for the installation of wireless access points in 720 stores across Australia within a tight six-month schedule.**

Working at night, the project included the re-cabling and replacement of the wireless access units, replacement of network switches and installation of 8800 new UPS units. The teams worked under considerable pressure to ensure the systematic installation, testing and commissioning of these new networks prior to the stores opening for trading each morning.

"By taking part in this project, Nilsen expanded their knowledge in the high rise commercial sector, developing their planning and programming skills which was crucial to its successful delivery."

## Verde Office Complex, Townsville

**Queensland**

**The Queensland State Government's new 12-level Green Five Star office tower in Townsville's CBD features solar glazing in aluminium frames and extensive sun screening. The 11,500m$^2$ building will house approximately 800 staff across multiple state government departments.**

Key elements supplied by Nilsen include two standby generators, power factor and harmonic correction, data communications, fire and emergency systems, access control utilising CCTV.

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"The Telstra Clayton data centre is operational all year round and is designed as a Mission Critical Facility."

## Telstra Cloud Computing Centre, Clayton

**Victoria**

**The Telstra data centre has been constructed in Clayton. The centre is operational all year round and is designed as a Mission Critical Facility.**

Nilsen's scope of works included diesel flywheel-static UPS (DRUPS) technology, and 2N+1 redundancy provided in part by two, 10 MVA feeders. The scope of the project was huge comprising of four DRUPS plant rooms, two stand-by generators plant rooms, six main switchboards, two generator switchboards, 16 UPS output switchboards, supervisory control and data acquisition (SCADA) systems, lighting, communication, and security systems.

"Nilsen was chosen because they had proved that for critical projects they could be relied upon to perform."

## Rio Tinto Hope Downs

**Western Australia**

**Nilsen provided 10 transportable sub-stations, switchboards and field marshalling boxes. For the Cape Lambert Port, Nilsen constructed motor control centres and transportable switch rooms.**

The remote location of the project site represented special logistics challenges for transportation and site attendance by Nilsen personnel to assist the commissioning teams and for supply of additional equipment.

Nilsen was chosen for this project because of previous experience the customer had with Nilsen proved that for critical projects they could be relied upon to perform.

"The completed pipeline has been deemed a success and an important infrastructure asset for the people of Victoria."

## Sugarloaf Pipeline Project

**Victoria**

**The Victorian Government had to provide a 70-kilometre large-diameter pipeline to transfer water from the Goulburn River near Yea, to the Sugarloaf Reservoir in the Christmas Hills, 35 km north-east of Melbourne.**

The scope of work undertaken by Nilsen included electrical installation for three pumping stations and two outlet control valves as well as high voltage, medium and low voltage cabling, DC for instrumentation and fibre-optic cabling for the long distance control backbone.

> The thermal and ultrasonic scanning program has provided detailed information on the status of critical electrical equipment, allowing our client to plan their maintenance and upgrade activities."

# Sydney Airport Tegg Preventative Maintenance

**New South Wales**

**Nilsen Engineering Services has undertaken a major preventative maintenance program on behalf of SACL at the Sydney International Airport. TEGG scanning of major LV infrastructure was completed over a 12-week period commencing in April 2014. The infrastructure included main circuit breakers, bus duct feeders, take off boxes, transformer supplies, PFC equipment, distribution boards and CFS units.**

The thermal and ultrasonic scanning program has provided detailed information on the status of critical electrical equipment, allowing our client to plan their maintenance and upgrade activities.

TEGG scanning of major LV infrastructure



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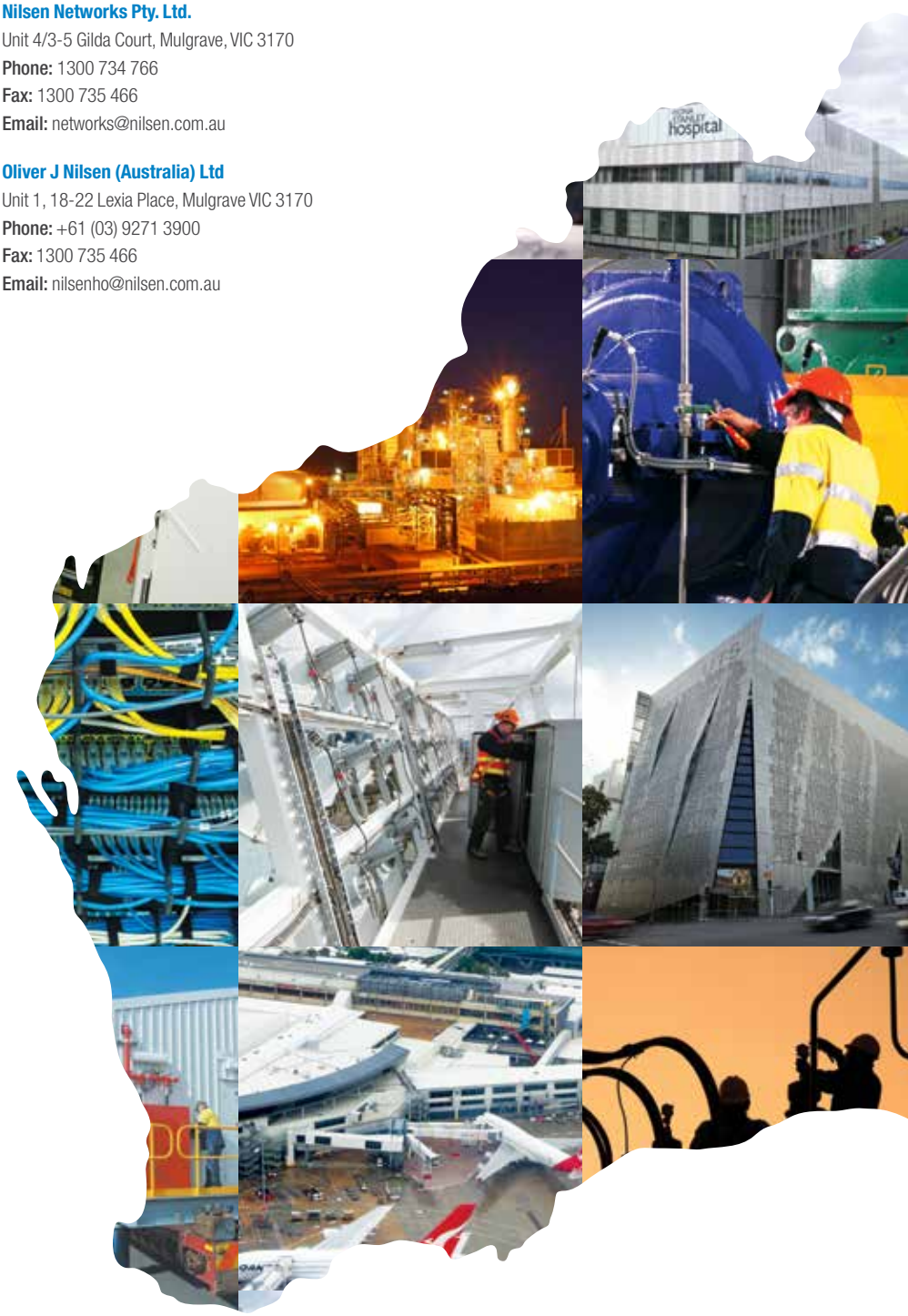


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