SUSTAINABLE POWER FOR VICTORIA'S GOLDFIELDS HEARTLAND

Mt Mercer Wind Farm is expected to generate enough renewable electricity to power the city of Ballarat.

MAIN CONSTRUCTION COMPANY : Meridian Energy Australia
CONSTRUCTION VALUE : $260 million
COMPLETION DATE : Quater 3 2014
NUMBER OF TURBINES : 64
WIND FARM CAPACITY : 131.2 MW
SITE AREA : 2,600 hectares

In a joint effort involving leading engineering, renewable energy and construction talents, the Mt Mercer Wind Farm project is set to deliver enough power for the entire city of Ballarat. The $260million, 131MW project is being constructed by Meridian Energy Australia (a fully-owned subsidiary of Meridian Energy Limited) with Senvion (formerly REpower Systems SE) and Downer EDI.

Downer EDI is undertaking the design and construction of the Project's civil works and the design and installation of the electrical balance of plant. Senvion is supplying and installing the 64 Senvion MM92 Turbines, which have an 80m hub height and a 92m rotor diameter.

The site comprises 2,600 hectares spread over seven conjoint agricultural landholdings, which will continue to be used for cropping, sheep, cattle and pig farming once the wind farm is fully commissioned and operational.

The first energy from the 64 turbine project entered the grid on November 19, 2013, the result of a sustained, highly coordinated and well-managed program which has in under two years completed a substantial civil and electrical engineering program.

Program milestones to date have included the installation of six collector groups, comprising 42km of trenching and underground cabling; the installation of 64 external transformers; the construction and successful energisation of the new Mt Mercer Wind Farm substation; the construction of 33km of access tracks; and the construction and energisation of the 22km 132kV overhead power line between the Mt Mercer Wind Farm Substation and the Elaine Terminal Station. The transmission line and Terminal Station have been built by Transmission Operations Australia, who will maintain ownership and manage their ongoing operation.

By Christmas 2013, 13 turbines were feeding energy into the national electricity grid, and by the end of February 2014 half of the 64 wind turbines were mechanically complete with 25 of these turbines generating electricity into the network. The balance of the turbines are due to be installed and commissioned throughout quarter two 2014.

The maintenance and service facilities directly to the West of Mt Mercer Wind Farm Substation has been completed, enabling the removal of some of the temporary site facilities, as the project team has now shifted into the new facilities for the remainder of the construction program.

"The weather has been the biggest challenge so far," said Meridian Project Manager Angus Holcombe. "It was wet and cold during winter and spring, and now (in February 2014) we have very hot and windy conditions with high to extreme fire danger most days."

There are approximately fifty workers still on site with the majority of these working on turbine installation and commissioning activities with a small civil and electrical balance of plant crew undertaking minor tidy up works across the site.

Turning agricultural land into a fully-functional wind farm has involved a wide variety of civil works. Due to the location of the site being a substantial distance from supplies of quarry products and concrete, the decision was made during the planning phase to develop an on-site quarry to provide the estimated 250,000 tonnes of hard rock materials required for access track construction and turbine hardstand foundations. The on-site batching plant produced 25,000-plus cubic metres of concrete needed for the turbine foundations.

The on-site quarry solution and on-site batching plant minimised the impacts of the construction process on the region's local and arterial road network, and reduced the construction carbon footprint by minimising fuel for transport. Following the completion of the footings and hardstands, the quarry is being rehabilitated and returned to pasture.

Approximately 33km of heavy vehicle access tracks were constructed, with rigorous planning and stringent environmental management plans put in place to minimise the environmental footprint of both track construction and the tracks themselves. Erosion prevention has also been a key priority.

Mt Mercer is Meridian's third wind farm project in Australia (adding to the four New Zealand wind farms operated by Meridian Energy Limited). The company also owns and operates Mt Millar wind farm in South Australia but has recently divested its stake in the 420MW Macarthur Wind Farm which it partnered with AGL Energy to build in 2013. The Macarthur Wind Farm remains the largest wind farm in the Southern Hemisphere.

For more information contact Meridian Energy Australia, Meridian Energy Australia Pty Ltd, Level 15, 357 Collins Street Melbourne VIC 3000, phone 03 8370 2100, fax 03 9620 9955, email info@meridianenergy.com.au, website www.meridianenergy.com.au

EXPERIENCE AND ADVICE ASSISTING SUNRISE INDUSTRIES

While for some companies renewable energy projects are new territory, icubed consulting are one of the country's most experienced consulting specialists in the field, with Mt Mercer being the 14th wind farm they have worked on. icubed was the Principal Consultant in respect of the Design of the Balance of Civil Works. This scope included the procurement geotechnical and topographical surveys; concept and detailed designs; assistance in cost-planning for all the civil engineering aspects; assessment of transport routes for materials; also sourcing of heavy aggregates and concrete.

In terms of specific project infrastructure, icubed delivered designs for the foundations for the kiosk transformers and wind turbines; stormwater drainage; on-site roads; an external road bridge; foundations, drainage and structural steel for the wind farm switchyard; hardstands for the 600 tonne crane used to erect the wind turbines; as well as sediment and erosion control measures across the site. Their involvement commenced in February 2011 during the Early Contractor Involvement (ECI) phase. Downer Australia then retained icubed for ongoing advice and assistance, including full-time quality surveillance throughout the civil construction program.

The Mt Mercer project involved multiple and progressive handovers and nine separate construction zones. icubed was involved with seven of these zones, comprising six collector groups of turbines and the substation. As works progressed, they undertook concrete inspections and Quality Assurance reporting as part of their ongoing supervisory role.

"In scope this was one of the largest wind farm projects we have completed," said icubed Principal Consultant, Nick Canto.

"On previous projects, we hadn't been as involved in roads, hardstands, drainage and substation works. On this project, we pulled all our civil disciplines together. The main challenges were during the design phase, coordinating all the civil elements and the electrical design. Construction commenced prior to full design completion, so we were simultaneously supervising early stages of construction while undertaking design of some elements and integrating input from the electrical engineering and design team. Generally, the logistics and keeping up with the project milestones was challenging."

"We had a full-time site engineer on the project, which really streamlined the information flow from the design team to the site team. We had a fantastic relationship with Downer. Through the ECI process and through execution we have worked with their design team, the implementation team and the procurement team, and at all those levels they have been great to deal with."

"The Meridian Assistant Project Manager, Angus Holcolme, has also been excellent to work with. He was tasked with obtaining all the necessary permits, and much of the information he needed was coming from us."

"Altogether, the design process for Mt Mercer was very smooth. Everyone brought a high level of expertise and commitment to the project, and engaged in collaboration with the best interests of the project in mind – that has been the advantage of the ECI process."

icubed's involvement with the project once civil works were completed has been scaled back to regular site visits to monitor drainage and revegetation until final project commissioning and handover in June 2014.

As specialists in industrial and renewable energy sector projects, icubed are a multidisciplinary boutique consultancy with a staff of 24 including Civil and Structural Engineers, Architects, Urban Planners, Environmental Specialists and Administration Support. During the Mt Mercer project, up to half the team were engaged on the project at one time or another.

Other wind farm projects icubed have completed include a 13-turbine project at Morton's Lane near Hamilton in Victoria and the community wind farm at Hepburn Springs.

In the industrial sector, icubed are working on a range of multidisciplinary projects across Australia, including a 1,000,000 tonne per annum concrete grinding plant in Brisbane; a new 10,000 sqm fibre reinforced plastic manufacturing facility in Toowoomba; electrical transmission lines for the Snowtown Wind farm in South Australia; and an acetylene gas production facility for BOC gases at Rocklea in Brisbane.

The company has also completed offshore assignments, including a concrete plant in far eastern Russia and a fibreglass road bridge in New York State in the USA.

Risk assessments are another icubed speciality, with clients such as the Queensland Nickel Industries relying on their expertise in the development of hazard reduction and control measures. The company also undertakes dilapidation surveys for urban infrastructure and makes recommendations for improvements. icubed provides cost-effective solutions for local authorities who need a feasible means of replacing degraded infrastructure. For example, they designed fibreglass traffic bridges to replace ageing timber bridges in the Cairns hinterland.

"Our group name icubed consulting is derived from the terms Innovation, Ingenuity and Inspiration," said Nick Canto.

"They form part of our culture and vision to achieve fantastic project outcomes. We are grateful to have repeat customers with a national footprint who continue to trust us with their interesting and diverse projects."

For more information contact icubed consulting, phone 07 3870 8888, email mail@icubed.com.au, website www.icubed.com.au

ADVANCED CRANES - HIGH STANDARDS FOR SAFETY, SERVICE AND SKILL

Whether a client needs an emergency crane in the middle of the night, or a project like Mt Mercer Wind Farm needs them for several years, Advanced Cranes will go the extra mile to make sure their lifting needs are met.

From the very outset of the Mt Mercer project in 2012 Advanced Cranes were onsite, with mobile craneage, skilled and experienced operators, riggers and dogmen to unload the site sheds and assist with all the set up stage lifting requirements.

They will be working on the project until the last turbine has been commissioned and the final site shed removed, which is expected to occur in the final quarter of 2014.

The cranes they have provided for the project have ranged from 20T Franna cranes through to 200T mobile cranes, with up to four of their machines on site at any one time and up to twelve staff, depending on the lifting requirements.

As the crane contractor for Downer EDI, Advanced Cranes have been involved in the installation of the electrical infrastructure and balance of plant. This included doing all the lifting for the new substation and electrical transformers. Their cranes have also done a substantial amount of the unloading of the turbine sections as they arrived to site for staged erection.

Advanced Cranes provided all the lift analyses for the project, as well as developing Safe Work Method Statements for their team. These, combined with the company's highly effective and ongoing safety training, ensured the project was completed without any major safety incidents, and that all lifts proceeded smoothly and effectively.

A high degree of flexibility and responsiveness to the program was required, with cranes and operators deployed to site on an as-needs basis, and the actual cranes required from day to day varying considerably. Weather too played its part, as high winds or heavy rain would occasionally shut down lifting operations.

"There are always weather challenges on a wind farm job," said Advanced Cranes Director, Adam Tuddenham.

"It's just horses for courses, you respond to the situation as you need to."

Advanced Cranes have worked on other wind farm projects, including the Hepburn Community Wind Farm for Repower Energy, as well as numerous commercial construction and infrastructure projects including the Great Western Highway Duplication for John Holland, the Ballarat Cancer Research Centre for Leighton, Ballarat University Science Precinct for Cockram Constructions, and numerous Bunnings stores around Victoria and as far afield as Joondalup in Western Australia.

They also provide lifting services for high voltage power line work, structural steel and tilt panel erection, and a wide range of short-notice and specialist lifting assignments including emergency craneage for accidents and assistance for factory breakdowns, with an on-call 24/7 service ensuring they can be where they are needed, when they are needed there, even at short notice.

Founded five years ago by Adam Tuddenham, who had a decade of previous experience in the lifting and access industry, Advanced Cranes has grown from a single crane to a fleet including truck mounted cranes, Frannas, all-terrain cranes, city cranes and crawler cranes, ranging from 3T to 240T.

When a client's project requires it, they will also procure cranes to suit the task. Recently this included sourcing a 300T crane for an air conditioning plant installation and a 350T crane for an infrastructure project. They also have their own heavy haulage trucks for crane transport.

The company's twelve full-time operators are all trained and qualified riggers, some of them with more than three decades of experience in the industry. Advanced Cranes also has a mechanic on staff who ensures all the equipment is fit for purpose, and responds to any need for maintenance or repair.

"All our staff are very versatile, and the more experienced operators take the younger operators under their wing and ensure they are learning effective and safe work methods," said Adam. "Everyone undertakes ongoing safety training, and there are competency tests before induction onto a site like Mt Mercer. There are also constant refresher courses - this month all the staff did a first aid refresher. Safety is something you always have to have in the back of your mind."

For more information contact Advanced Cranes, Lot 4 Villiers Drive, Wendouree VIC 3350, phone 0437 484 637, email admin@advancedcranes.com.au

THE ESSENTIAL ELEMENT FOR SUCCESSFUL POWER OUTCOMES

For a wind farm project like Mt Mercer, the Wind Turbine Generator (WTG) transformers are a key element of the critical path of bringing power to the people.

ETEL Transformers Pty Ltd, the Australian subsidiary company of New Zealand company ETEL Limited, were contracted to meet this need, through the design, manufacture and supply of 66 No. 2.5MVA 33kV kiosk WTG transformers which will convert the power generated by each turbine into high voltage power for feeding into main grid transmission lines.

ETEL Transformers Pty is the Australian service and supply arm of New Zealand manufacturer, ETEL. Since entering the renewable energy sector in 2003, the company's transformers have been used in several previous wind farm projects, including manufacture and supply of 63 No. 2.6MVA 33kV/690V kiosk transformers with HV switchgear for Meridian Energy's Westwind Wind Farm in Wellington New Zealand, 9 No. 1.0MVA 33kV/690V Kiosk Transformers with HV Switchgear to Pioneer Generation's Mt Stuart Wind farm in Otago, 55 No. 800kVA 33kV/690V Kiosk Transformers with HV Switchgear to Trustpower's Tararua Wind farm on the Taurarua Ranges and 5 No. 2.5MVA 33kV/690V DSTATCOM HV/LV cablebox style transformers for AGL's Oakland's Hill wind farm substation in Victoria

Founded as a specialised transformer manufacturer in 1956, ETEL entered the distribution transformer market in 1994. In Australia, ETEL supply distribution transformers to several electricity networks from an operations base in Tullamarine, Victoria. The Australian network customers include Energex and Ergon Energy in Queensland, SP AusNet, Jemena, United Energy, Tenix and Powercor in Victoria. Having an office and warehouse base in Melbourne enables ETEL to provide a high level of service and ex stock delivery of transformers to all regions of Australia.

Key features of the type of kiosk transformer supplied for Mt Mercer include a robust 3 Limb, core type construction of Cold Rolled Grain Orientated Electrical Steel sheets. The transformers have a hermetically sealed tank and terminal configurations to allow for installed switchgear as required. The package also includes accessories for transformer protection and monitoring, and the option of either standard transformer oil or flame resistant biodegradable fluid. All ETEL Transformers are manufactured according to an ISO 9001: 2008 Certified Quality Management System.

Other sectors ETEL have manufactured and supplied transformers to include the industrial, development and electrical infrastructure sectors, for which the company manufactures and supplies a variety of industrial, polemount, padmounted and kiosk style transformers ranging from 1kVA (1 phase) through to 4MVA, (3 phase) with voltages up to 33kV. All transformers are designed to meet each client's individual needs, including the inclusion of appropriate LV and/or HV switchgear.

This area of operations has included ongoing supply of kiosk and cablebox transformers for the massive APLNG project in Central Queensland, and supply of network approved kiosk transformers with

HV/LV switchgear direct to electrical contractors for the electrification of new subdivision developments.

ETEL's parent company, Unison Networks Limited, is the fifth largest electricity network company in New Zealand. Unison has been serving New Zealand's electricity sector for 80 years, and has grown into an innovative provider with an annual turnover of over NZ$180 million and primary responsibility for design, development, operation and maintenance of electrical powerlines and transformers over an 11,000 square km territory.

The company's team combines a high level of technical knowledge with a complete commitment to timely, efficient and professional service. The company has a Development Engineering team who are dedicated to the research and implementation of sustainable solutions, with a current focus on the development of transformers with system automation and remote data collection. For their clients, the company's supply chain innovations, use of best available materials and utilisation of the latest technology and production processes ensures a reliable, cost-effective low maintenance solution which is simple to integrate with the surrounding systems, easy to commission and built to last.

For more information contact ETEL Transformers Pty Ltd, 30-32 Assembly Drive Tullamarine VIC 3043, phone 03 9310 5186, fax 03 9310 5184, website: www.eteltransformers.com.au

SAFETY FIRST FOR WIND FARM BLASTING TEAM

Turning a sheep paddock into a quarry for Mt Mercer Wind Farm required the specialist services and safety knowledge of Full Bore Drill and Blast (Fullbore). Fullbore coordinated and completed all the drill and blast operations for the project, which included applying a high degree of skill to planning and undertaking blasts in geotechnically challenging material.

The Fullbore scope included the design and survey of blast patterns, drilling of blast holes and logging of clay intrusions, delivery of explosives to site, loading and firing of all blasts, and the development of comprehensive Safe Work Method Statements, Security and Blast Management Plans.

Additionally, as the new quarry is located in close proximity to surrounding farm houses and local road networks, Fullbore supplied several blast monitors and carried out monitoring of all blasts at key locations to ensure that peak overpressure and ground vibration limits were not reached or exceeded. The Full Bore team were assisted during monitoring operations with back-up technical support from Terrock.

According to Full Bore Drill and Blast General Manager, Luke Martyn, because the project was a first in terms of material being drilled and blasted for a wind farm at an on-site quarry, rather than delivered to site from surrounding quarries, many of the Wind Farm personnel were not familiar with the drill and blast process. This made for a strong emphasis on safety to ensure the development of safe practices and the reaching of set project targets without incident. Fullbore worked closely with Downer safety personnel to ensure all hazards were identified and safe processes put in place.

"The site required the supply of large volumes of blasted material for crushing at very short notice given the weather constraints and the material's properties and reaction when hit with rain," said Luke.

Fullbore deployed a crew of 10 to the project, including Certificate III qualified drillers, Licensed and experienced Shotfirers, surveyors and licensed dangerous goods drivers. Fullbore mobilised a fleet of 3 new DP1100i and DX 800 drill rigs to keep up with the drilling requirements.

"The new Sandvik DP1100i rigs deliver the latest in drilling efficiency and safety. They allow our drillers to make adjustments to rotation, percussion and feed pressures on the fly and according to changing rock conditions. We have invested in these new machines with a vision to providing customers with the very best in drilling performance and therefore blasting performance".

Fullbore also used two of their own registered explosive delivery vehicles for all initiation equipment delivered to the site. Fullbore enlisted Orica to supply and deliver bulk explosive, via their fleet of MMU bulkmaster trucks.

"The Orica trucks can deliver 10 tonne of explosive in one unit. This allowed us to cover the largest of the blasts - being 20 tonne - at the wind farm with just the two units," said Luke.

"The material presented problems from a blasting point of view with clay intrusions threatening to soak up the blasts energy and effect the fragmentation of the rock through a reduction of explosive energy working directly on the rock where it is needed. Fullbore shot firers designed, surveyed and logged all blast holes to ensure that maximum fragmentation was achieved through the decking of clay intrusions".

"Also the size and short time frame of some blasts required the mobilisation of additional fleet and the support of extra shot crews for larger blasts which involved the loading and firing of some 1000 holes in the space of a single shift."

For 30 years Fullbore have been providing complete drilling and blasting services to the quarry, mining and construction industries across Victoria, New South Wales and South Australia. Their projects have included drilling and blasting for quarry and mining development and production; and construction drilling and blasting for road projects, rail projects, water catchment works, ski field developments and wind farms.

The company was founded by Wayne Martyn, who has over 30 years experience in the drilling and blasting field. Having this depth of expertise to call on has enabled the company to develop a highly-skilled and safety conscious team who have completed many projects under challenging conditions, and always deliver works to a high standard on time and on budget. The company owns plant and equipment including a fleet of six Sandvik drill rigs; monitors and survey equipment; mobile blast shelter; rig support light vehicles and service vehicles; and transport vehicles including registered explosives transport trucks.

"Fullbore is a family owned and operated business that employees local people," said Luke Martyn. "The company puts an emphasis on training and attitude. Clients benefit from dealing directly with the owners of the business, and from our team of highly motivated guys who really enjoy their job and take real ownership of delivering a great result for the client."

Having completed Mt Mercer, Full Bore Drill & Blast are now supplying drilling services at Boral's new Peppertree Quarry at Marulan New South Wales, which will be Boral's largest quarry in Australia once it hits peak production.

For more information contact Full Bore Drill & Blast Pty Ltd, phone 0415 393 850; or 0407 004 888; or (office) 03 5728 1720, website www.fullboreaustralia.com.au

Fullbore DRILL AND BLAST

MAKING THE GRADE IN DEMANDING CONDITIONS

When experience is equipped with the right plant, it can manage any challenge posed by a site and a variable works program. Mansfield Constructions have over a decade of experience in quarry products, which enabled them to go from a soil-covered site to delivering the first loads of graded quarry materials required for the Mt Mercer Wind Farm construction in less than three months.

Mansfield's scope included stripping the overburden, establishing the site facilities in conjunction with Downer Edi, establishing their crushing and screening plant, and commencing quarrying activities. They also contributed to the Development Approval process for the quarry, which included establishing the company's bona fides as a fully licensed and compliant operator.

The company deployed a flexible workforce to the site for crushing, screening, grading and quality-controlling the Mt Mercer quarry products during the peak of operations.

The company's crushing and screening plant on site had the capacity to process up to 4,000 tonnes a day, and Mansfield also provided their own loaders, excavators, all plant operators, leading hands and quarry management.

In all, the Mansfield Constructions team extracted and processed 250,000 tonnes of diverse products including 50mm minus crushed rock for haul roads; 20mm minus fine crushed rock for roads and hardstands; 150mm minus crushed rock for sub-base, sink holes and wet areas; 150mm gabion stone as clean spalls for drainage; and scalps for backfilling.

"The products required kept changing to suit the application, and Downer regularly tested them to ensure the products were fit for purpose. We scheduled our work so we could provide a continuous supply of exactly what was required by the program, and we were also responsive to sudden requests for variations," said Mansfield Constructions General Manager, Ant Bateup.

"Working with Meridian and Downer EDI has been excellent - this has been one of the best sites we've worked on. There has been a real teamwork approach which has extended from the onsite workforce right up to management."

"One of our biggest achievements was within three months from the initial conversation we had products on the ground. We have been able to keep up with demand, and continually changed the product to suit the contractor's needs. The material was a challenge, as the geotechnical conditions were quite variable."

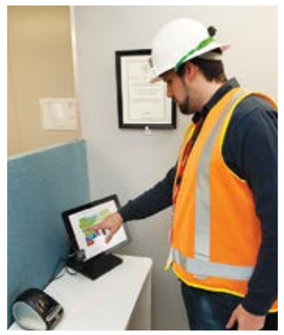
Mansfield Constructions undertake work around Australia, and have undertaken a substantial number of projects across New South Wales, Victoria and the Northern Territory. With a flexible workforce of up to 40 skilled and experienced operators, leading hands and site managers, and enough Powerscreen Mobile plant to have up to four sites operating concurrently, they are in a position to respond quickly to project needs and deploy appropriate resources.

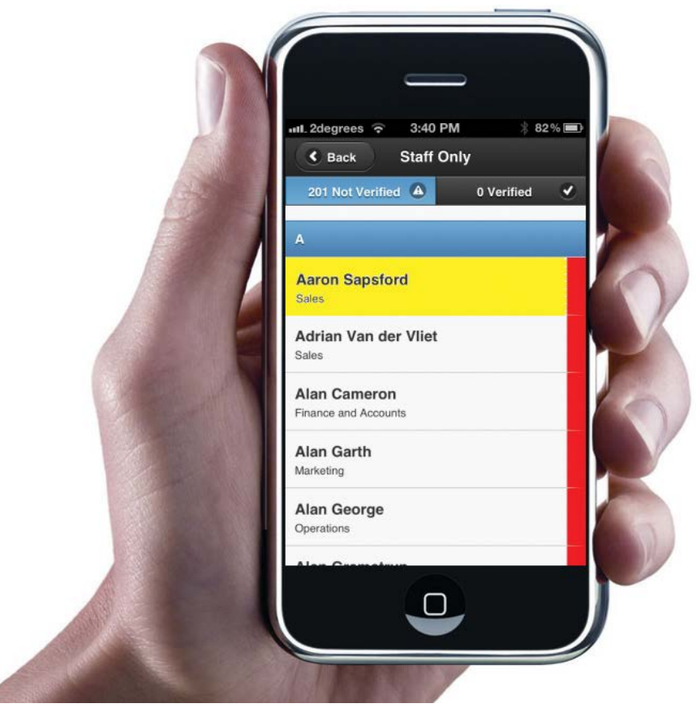
Mansfield Constructions also have a civil earthmoving division equipped with dozers, graders, excavators, skid steers, mulchers and water cartage. Being based in Mansfield Victoria, the company prioritises local employment. The company's capabilities cover all aspects of rock crushing and screening, sand washing and general screening to produce materials which meet exact standards including NATA specifications, VicRoads standards and RMS (formerly NSW RTA) standards.

All maintenance is handled in-house at Mansfield's workshop, which is staffed by trade-qualified fitters. The company also has highly skilled mobile service technicians, and every crew is accompanied by a service truck. "We pride ourselves in being up to speed with all the relevant standards, including environmental management and safety, which is our number one priority.

"We can step onto any quarry, mine or construction site in Australia, and our substantial background in mobile crushing means we can adapt to any challenging site's specific circumstances."

For more information contact Mansfield Constructions, PO Box 506 Mansfield VIC 3722, phone 03 5775 2971, email info@mansfieldconstructions.com.au





KEEPING EVERYONE IN THE KNOW

Knowing who is on site is vital information for any major project, but with a site as large as the Mt Mercer Wind farm, that could have been a real challenge. IDentiTech provided the key to keeping track of everyone, with a state-of-the-art complete visitor and staff identification management solution.

The package they provided included a datacard printer, laptop and software to manage the on-site printing of staff photo ID cards, as well as a kiosk and label printer which enabled visitors, staff and contractors to check themselves in and out of the site.

One of the innovative aspects of the system is that when a visitor checks in, and nominates whom they are meeting with, as the individualised visitors' pass is printed out, an email and SMS is sent to the person who is meeting them to notify them of the visitor's arrival.

The system also provides staff of Mt Mercer with a real-time view of who is on site at any given time, which is critical information in event of any emergency, and also enables them to run reports and manage staff and contractor presence.

IDentiTech also provided on-site training covering all the key aspects of the system, to ensure staff would achieve maximum benefit from its technology and people-management features.

IDentiTech are specialists in end-to-end identity management solutions. Their products and skill are used by some of the most security-conscious organisations in Australia, including Government, Healthcare, Education and the Corporate Sector.

The company undertakes both special projects for specific needs such as the Mt Mercer site, and provides ongoing services to clients through the IDentiTech Card Bureau. This division uses state-of-the-art production methods to produce personalised photo ID cards, using the world's best available plastic card printers, and also stocks a range of plastic card accessories.

When it comes to identity management solutions, IDentiTech can help organisations manage the rights of people to access a location through its WhosOnLocation service, a cloud-based people presence application designed to manage the presence and safety of visitors, contractors, and staff at any location, anywhere in the world.

IDentiTech can also provide a full suite of corporate identity products including custom-printed clothing, workwear, PPE, and merchandising products – everything an organisation needs to ensure branding and corporate identity is promoted both throughout the company and to clients and the broader marketplace.

Having a core of highly experienced management is part of the IDentiTech difference. Managing Director, Colin Cesa, has been in the identity card industry for over 24 years, working across major ID projects in both Australia and New Zealand, in addition to projects in Asia and Europe.

With experiences including all current Australian Drivers License programs and many other local, state and Federal government initiatives, he brings to the company an extremely sound understanding of the importance of security in identity solutions and identity management.

Director Anton Schmidt founded Concept Data Marketing seven years ago, and rapidly built a niche in the use of leading-edge technology for ID card production through the use of secure on-line software.

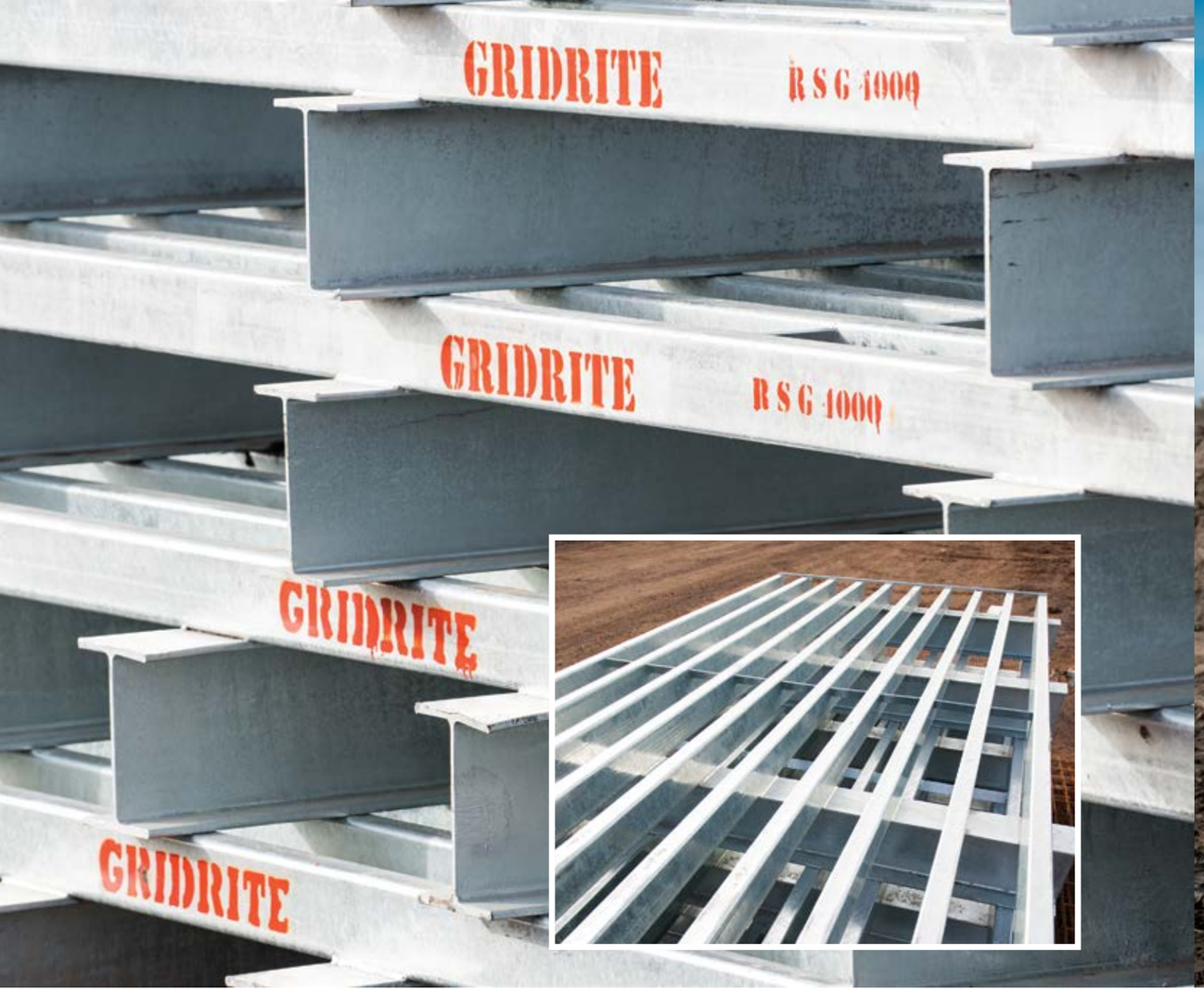
He brings to IDentiTech an understanding of customer needs, and a number of key initiatives he developed at Concept Data Marketing around the secure management of personnel and visitor data.

From their base in Melbourne, IDentiTech are able to rapidly respond to client needs. The company website offers a secure portal for ongoing ordering of identity cards, corporate branded items and accessories, including the latest model identity card printers.

Clients and potential clients can also access real-time technical advice and product information via live chat with one of IDentiTech's specialist support staff. With this level of support, and the ability to customise solutions for any project need, IDentiTech are the one-stop provider for all things identity-related, giving clients a complete solution which works throughout the organisation to ensure everyone knows who's who.

IDentiTech

For more information contact IDentiTech Pty Ltd, 22 Harker Street Burwood Vic 3125, phone 03 8808 4100, fax 03 9830 6548, email info@identitech.com.au, website www.identitech.com.au



PERENNIAL PROBLEM SOLVED THROUGH SUPERIOR DESIGN AND FABRICATION

The original inventor of the cattle grid is a matter for speculation, however, Queensland's Gridrite has definitely perfected them, with a range of heavy-duty temporary and permanent grids made for tough Australian conditions. For Mt Mercer Wind Farm, Gridrite fabricated and supplied main road entrance rated cattle grids and on-farm grids for key points on the wind farm's internal tracks.

They also supplied truck wash shaker grids, a patent-protected product which has a unique design with offset grid beams to produce a transverse action on the vehicle's suspension system. This causes stones and loose dirt to be vibrated off the flat surfaces wash sprays do not reach.

The on-farm property grids such as were used within the Mt Mercer footprint do not need concrete or pit excavation for installation, instead they can be installed on level and compacted ground and backfilled up to the abutment with road base material.

The Rated Property Grid is suitable for main road entrances and gazetted roads which have regular truck traffic. Constructed from Hot Dipped Galvanised Steel, or with painted finish, the grids have 32MpA concrete abutments, removable side wings and removable grid bolts to enable lifting for cleaning. The double width (8m wide) grids were specially developed by Gridrite for entrances and gazetted roads with regular truck movements, and are rated to 10T per axle up to 80km per hour, and engineered to W7 Class 5 Roads.

Gridrite was founded in Maryborough Queensland in 2004 by Robert Rapley, who saw a need for quality Australian-made steel stock and farm grids to contain livestock.

All Gridrite grids designed to deliver decades of service and are simple to install and maintain. The company also provides a range of extras including precast base slabs, and headwall units which have been designed to reduce erosion around grids by providing structure to the surrounding soil. The company has supplied grids to properties around the country, providing a quality solution to the perennial problem of wandering stock.

For more information contact Gridrite Pty Ltd, 25 Phillip Court Maryborough Queensland 4650, phone 07 4123 5522, website www.gridrite.com.au

The size of the Mt Mercer site and the complex nature of the construction tasks meant accurate and experienced survey skills were critical for the project's success. Downer EDI relied on the highly experienced infrastructure surveyors of TGM, who provided them with full survey support for all the construction aspects of the project.

"This involved a collaborative approach between TGM's field crews and Downer EDI personnel on site to resolve design issues, and to recommend modifications where necessary to designers and site managers after the initial setout of works from the design files supplied," said TGM Director, Andrew Harman. "TGM's contribution to the project was critical in minimizing downtime and maximizing the operating efficiency of all heavy plant operating on the site. In addition to site setout and design support, TGM completed as constructed records of electrical installations and cadastral survey for leases and easements."

The initial setout of access routes and hardstand areas was completed using a combination of GPS and robotic total station technology. TGM's experienced surveyors also provided on-site technical assistance to the civil construction team, supplying and loading data files to the machine guidance systems installed on some of the plant.

Specific quality procedures and documentation were developed to provide assurance to Downer EDI that the construction of the embed rings was completed to the required tolerances. This survey work was carried out using traditional precise levelling techniques.

From February 2013 through to October 2013, TGM provided between one or two fully-equipped survey teams to the project on a full time basis. Each team comprised a senior graduate surveyor and a technician.

Mt Mercer is the fourth wind farm construction project undertaken by the TGM team, and adds to the company's outstanding track record of providing accurate, professional and responsive survey services across all major infrastructure sectors. Other recent major survey assignments have included the Grampians Wimmera Mallee Water's channel replacement program, the Melbourne – Geelong interconnector pipeline and the regional fast rail upgrades.

The company's in-house capabilities include laser scanning, GPS, asset recording and also traditional survey techniques in addition to use of the latest survey and geospatial technology for field work. TGM is JAS-ANZ Accredited and is certified for Quality to ISO 9001, OH&S to AS/NZS 4801 and also holds Environment ISO 14001 certification.

For further information on TGM's capabilities for surveying solutions on infrastructure projects, contact TGM Survey Manager Adam Criddle on 0427 092528, website: www.tgmgroup.com