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Investing in diesel generation the smart way.

Ensuring reliability, productivity
and safety to power the future
of your business.

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**Energy Power
Systems**



Ensuring reliability, productivity and safety to power the future of your business.

At EPSA we're committed to ensuring best practice when it comes to using world-class materials and benchmarking standards on all our products, parts and components – and we're backed by the quality and global reputation of Cat®. As an investment in your future, a product built to last is the only choice to make for reliable back-up diesel power generation.

In manufacturing and farming, unregulated cheap imports may end up costing you a lot more than you anticipate. The biggest risk is that safety standards may be compromised – many countries simply do not work to the same benchmarks that we do in Australia. The influx of cheap imports is not just limited to building and manufacturing – just look at issues with foods, renewable energy technologies and even children's toys. Trade growth will also bring the potential for a flood of cheap imports to hit our shores, so it's imperative to be aware of safety, reliability and durability where power is concerned.

But for many primary producers, cheap imports provide a seemingly cost-effective solution to high-cost product requirements. It seems to be an alternative when they're already managing financial stress in the wake of drought, increased costs, debt loads, livestock health, volatile markets, changing regulations, uncertain crop yields, impact of the resources industry on farming lands, erratic electricity, pricing pressures from supermarkets, the changing face of rural communities and much more.

There is a great deal that our primary producers must deal with, but in this white paper, we demystify one of the major expenses – reliable back-up power generation – to reveal why it's necessary and how to make the smartest investment.

Phil Canning,
Managing Director

1. B Fitzgerald, J Prendergast, M Brann, T De Landgraft, K Mochan, [Powering the bush: Problems and solutions in rural Western Australia](#), ABC News Rural, 12 June 2017, viewed 28 June 2017

2. A Vidot, [Farmers call for comprehensive energy strategy as power prices increase more than 100 per cent](#), ABC News Rural, 13 February 2017, viewed 28 February 2017

“The National Farmers Federation has found the cost of energy for some farmers has increased by 100 per cent in less than 10 years”¹ including “some irrigators who rely on electric-powered pumps to water their crops, fruit trees and vines...”

ABC NEWS RURAL, JUNE 2017²



Why diesel power is a long-term solution to grid price and stability issues.

Power security is imperative to run any business – especially for Australia’s primary producers. And given they’re operating under a climate that’s as harsh as it is unpredictable, investing in back-up power generation means also investing in reliability, efficiency, performance and safety.

From floods to bushfires, Australia has always been battered, that is why we’re so resilient. But in recent years, extra pressure has been placed on our power networks. For example, following severe storms in September 2016, three elements of critical infrastructure were destroyed in South Australia, leading to the power system protecting itself by shutting down, and 1.7 million residents were left without power, and businesses and agricultural producers required urgent temporary power generation.

In fact, that state is now powered by just a mix of wind, solar and gas because the closure of Alinta’s Northern power station at Port Augusta effectively removes coal power generation from South Australia’s electricity production equation. And industry experts are calling it a crisis, noting that South Australian irrigators and farmers are making significant investments into diesel generators to secure their power supply, as price and stability issues continue to plague the state’s energy grid. And they’re not alone. It’s a concern to primary producers all across Australia.

South Australia will however soon be home to the world’s largest lithium-ion battery thanks to a historic agreement between Tesla and the State Government. This plan, in what Tesla founder Elon Musk says is “a fundamental efficiency improvement for the grid”⁴ is likely to completely transform the way renewable energy is stored, stabilise the South Australian network and downward pressure on prices.⁵ Integrating renewable power with smart energy storage and conventional diesel or gas-fuelled power generation is a welcome innovation for ensuring power security

Diesel boasts several advantages when it comes to portable back-up power

Fuel efficiency Cheaper than petrol and longer lasting.	Low maintenance Service needs are low and local support is available in Australia.
Much safer Less risk of ignition.	Long lasting Can last up to three times longer than petrol engines.



All businesses and households in Victoria, NSW and South Australia need to seriously consider investing substantial sums in diesel generators, batteries or other sources of emergency power... It is now absolutely clear that each of the state governments have not invested in sufficient emergency power to back their wind and solar installations and now have a network of wires that is unsuitable for the power generation grid they have established.”

ROBERT GOTTLIEBSEN
‘ENERGY CRISIS: TIME TO INVEST IN EMERGENCY POWER’
THE AUSTRALIAN BUSINESS REVIEW – 27 MARCH 2017³

3. R GottliebSEN, [Energy crisis: time to invest in emergency power](#), The Australian Business Review, 27 March 2017, viewed 28 June 2017
4. L Waldhuter, [SA irrigators, farmers turn to generators for electricity stability](#), ABC News, 3 December 2016, viewed 28 June 2017 5. S Scopelianos, T Fedorowytch, S Garcia, [Elon Musk’s Tesla to build world’s biggest lithium ion battery to secure power for South Australia](#), ABC News, 17 July 2017, viewed 21 August 2017

Five key considerations to purchasing diesel generation

1. Total cost-of-ownership is a critical risk to value during procurement

‘Cost versus return’ applies to most investments and diesel power generation is no exception. From fixed and stationary to portable generators, there’s a myriad of options that to the untrained eye may appear similar when hidden behind a well-painted canopy or enclosure. But are they?

At procurement, it’s vital to analyse your load requirements and the inherent risk and consequences of a potential failure. All too often the total cost of ownership is not considered at this point. For example, if you generate downstream income using prime power due to no suitable mains, then review warranty, how and where service is performed, response time, availability of local dealer support, and if rental is included to remain operational during service downtime.

And consider availability of spare parts and service consumables – for example, a non-OEM factory packaged genset may consist of readily available components and not be a tailored engineered solution that works.



2. Quality control processes may not be transparent with cheaper imports

Cheap gensets tend to originate out of non-aligned independent factories in China and India with little in the way of genuine supporting documentation or quality control. Continuity across a product line-up also generally does not exist with most components of unknown origin or performance.

Lower quality areas to inspect closely include turbochargers and manifolds, which are often misaligned, porous in casting, and with little or no guarding to meet Australian regulations. Radiators and supports are often poorly secured with low quality cores and sometimes missing crucial protection guards.

And question if an engineered solution been provided in the canopy design to service the radiator. Poor or incorrect anti-vibration mounts, air filter housings with little engine protection, and cheaply constructed exhaust systems should be also on your inspection hit list. And don’t forget out-of-sight items such as varnish on alternator windings and the brand of automatic voltage regulator.



3. Verify source parts origin and ensure compliance with Australian standards

Canopy or sound-attenuated enclosures are highly visible and warrant solid pre-purchase inspection. Ask where sheet metal originated from, its manufacturing treatment process and final top coat make-up. A good manufacturer will supply this data to you immediately upon request.

Also review all latches, seals, hinges and doors to ensure they’re an engineered solution that works now and for the expected life of your purchase. For example, does the access door/s open to uninterrupted work area for maintenance? Is there containment inside the generator base if the internal fuel tank overfilled or ruptured? And is the tank of a quality corrosion resistant banded steel design, or is it a loose-fitting plastic tank from an unknown source with a questionable seam through its centre – far from ideal if mounted to a trailer or a truck.

Don’t forget that JSAs, SWMs, test certifications and site-specific labelling are well entrenched regulation standards of Australian workplaces, so if you’re buying an imported genset, ask if its fully load-trialled and documented upon manufacture. A two-minute test run to ensure indicating gauges work is not a sufficient load test – the generator needs to be connected to a load bank in a controlled environment and taken to full capacity for a given period to ensure proven performance. A test certificate or pre-delivery inspection certification with relevant dates and individual serial numbers verifies this test.

Ensure these criteria are available to you along with operation and maintenance manuals, a comprehensive parts list for all components (not just consumable engine filters), standard operating procedures, warranty activation forms and documents. And, perhaps most importantly, make sure all documentation is provided in English and there is an Australian point of return.

4. Never ever skimp on control systems, circuit breakers and electronics

No matter what type of genset you’re purchasing, it’s imperative that all electronics are first-class to guarantee safety. Ensure the package is built to an accredited standard outside of the country of origin – you want it to meet Australian standards. Find out how it’s been wired – is there labelling and correct colour coding and have ferules been used where required? A simple five-cent diode failure can potentially stop a mechanically well-serviced genset, so consider how this failure could cost your business in lost production, wages, product and deadlines. Also investigate availability of local support for diagnostics and parts for those electronics.

5. Ensure all pre-delivery inspections and documentation comply with Australian standards

Even when purchasing in Australia from an Australian company, this is imperative. These certifications verify that the genset was fully load-trialled and documented at time of manufacture. English operation and maintenance manuals do not necessarily come with your purchase yet are essential to maintain your genset. Also, some product is sold without an Australian point of return for technical support or warranty. EPSA has over 100 local Cat® service dealers across Australia through the Cat® dealer network. Caterpillar® trained technicians are available to service and maintain Cat® power systems in Australia.

Choose EPSA and the global reputation of Caterpillar® to experience a superior investment and reliable performance.

Caterpillar® is renowned for reliability, safety and dependability with Cat® power systems boasting a proven lowest total cost of ownership and highest return on investment. Used Cat® generators are always in high demand making your Cat® purchase a true investment.

There are thousands of Cat® generators currently providing prime power or standby support in commercial and residential operations across Australia provided by Energy Power Systems Australia (EPSA) – the exclusive Cat® dealer in Australia. Let EPSA help your business with standby power during a mains outage, prime power when utility supply is not available and continuous power for mission critical applications.

EPSA's simple-to-specify and purchase and easy-to-install and operate Cat® product line allows you to exactly match a Cat diesel generator from 7.5kW to 17,460kW and experience:

- » World-class fuel efficiency
- » Up to 40,000 hours between major overhauls
- » Wide range of factory-designed options
- » Low life-cycle costs
- » Excellent transient response and steady state performance
- » Single source for complete power solutions
- » EPSA's technical knowledge and engineering expertise
- » Over 100 Cat Dealer Partners for service and support across Australia



GLOBAL COVERAGE, LOCAL SUPPORT.

For new and used engine sales, rental and renewable energy solutions call Energy Power Systems Australia

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