



Case Study

Delivering operational efficiencies and environmental benefits through innovative power solutions.

OVERVIEW

NRW Civil & Mining, a leading civil and mining contractor contacted Fuelfix with an essential project requirement for a remote iron ore mine site in Newman.

Tasked with constructing a temporary refuelling station for their client, they needed a solution that would provide efficient and reliable refuelling while meeting stringent operational standards.

NRW required a setup capable of simultaneous refuelling for two vehicles.

Their brief specified two independent 110,000L self-bunded fuel tanks. Fuelfix's solution had to accommodate continuous operations at the Pilbara based mine site, to ensure refuelling around the clock.

NRW partnered with Fuelfix to optimise operational efficiency on-site while reducing CO2 emissions.

CHALLENGE

One of the significant challenges mining operators face is the need for constant power generation due to their 24/7 operations. This often results in the continuous running of diesel generators. Consequently, these generators quickly reach their regular service intervals of every 500 hours and have a life expectancy of 3-5 years.

The project was the creation of a new facility, which lacked any previous infrastructure for refuelling. Ordinarily, a site like this would operate using a 60-75 kVA diesel generator, operating 24/7 regardless of fuel dispensing activity.



LOCATION	North West of Newman, WA
YEAR	2024
INDUSTRY	Mining
FOCUS	Operational Efficiency and Environmental Benefits
SOLUTION	Safe, stand-alone, energy-efficient and green refuelling solution

This traditional setup, however, comes with challenges:

- **Continuous Maintenance:**

Diesel generators running continuously require frequent maintenance, resulting in added operational downtime and associated costs. It also increases the risk of injuries with each on-site personnel shift.

- **Ongoing Refuelling:**

High fuel usage demands regular refuelling, posing logistical and environmental challenges.

- **Environmental Impact:**

Diesel generators produce significant emissions, impacting the environmental footprint of mining operations.

We worked closely with the electrical and mining contractors to develop a solution that not only met the current requirements but also addressed these operational challenges through an innovative approach.

SOLUTION

Fuelfix designed an alternative power setup incorporating a Battery Energy Storage System (BESS) with a diesel generator to create a hybrid solution.

This solution presented several advantages over the conventional generator-only approach:

- **Efficient Operation:**

The Fuelfix BESS enables the diesel generator to operate only when necessary. This dramatically reduces the generator's runtime by storing energy and only supplying it when needed.

- **Lower Fuel Consumption:**

Fuel usage is minimised by reducing the generator's operational hours, cutting costs significantly.

- **Environmental Benefits:**

No regular refuelling is required, avoiding logistical and environmental challenges.

- **Environmental Impact:**

Alignment with the clients broader sustainability objectives due to the reduced dependence on diesel power.



The transition to BESS technology was carefully managed, emphasising safety and operational continuity. To ensure seamless adoption of the energy storage system, we provided all stakeholders and onsite teams with comprehensive training and support. By addressing concerns and building knowledge among the teams, we successfully introduced this advanced energy solution to the mine site, enhancing both operational efficiency and environmental sustainability.

Given that safety is paramount on a mine site and a core value of Fuelfix, significant emphasis was placed on ensuring that the equipment and installation was smooth and met the deadline and stringent standards required by the customer.

Benefits of Fuelfix BESS Solution:

The BESS offers a range of benefits over traditional generator setups, which were instrumental in the contractor's decision to proceed with the installation. Key benefits include:

1. Cost Savings:

- Reduced fuel costs due to lower fuel consumption. NRW reduced their operational costs by 25-30%.
- Lower maintenance expenses as the generator maintenance needs are greatly reduced.

2. Operational Efficiency:

- The generator's lifespan is extended and the need to replace delayed due to reduced operational hours.

- Fuelfix BESS reduces the frequency of generator servicing, eliminating maintenance interruptions, downtime and associated safety risks for operators on site.

3. Environmental Impact:

- Substantial CO2 emission reductions as the setup enables to reduce emissions by 85% annually, a significant improvement for the mining industry.
- Enhanced Sustainability as Fuelfix's solution aligns with the end mining customer's environmental goals, reducing the site's overall carbon footprint.

Savings

Based on the performance to date, annualised results indicate this set-up enables the client to :



Save 46,410L of fuel

Reduce diesel generator runtime by **90%**



Save \$79,815 of fuel and maintenance costs

Based on fuel costs at AUD1.5/L and reduced maintenance service runs by 83%



Reduce CO2 emissions by 125 tonnes

According to Tree For Life (TFL Carbon), it requires about 29 trees to offset this amount of CO2 emissions over 30 years.



VERDICT

The implementation of Fuelfix's battery energy storage solution at the mine site has successfully addressed the clients operational needs ensuring a reliable power source for the refuelling station and aligning with both economic and environmental goals of the client.

Barry Gallacher, Senior Project Manager at NRW Civil & Mining said:

"The NRW team at site are pleased to have been able to partner with Fuelfix in the supply and delivery of the temporary fuel facilities for our project. Its particularly pleasing to see development and introduction of new modern solutions that not only offer significant cost savings and greater operational efficiency but also substantially reduce our environmental impact and lower our CO2 emissions."

Fuelfix's innovative approach has proven instrumental in reducing costs, extending equipment life, and minimising emissions, setting a new standard for sustainable operations in the mining industry.

Fuelfix remains committed to delivering high-performance energy solutions, tailored to meet the unique needs of Australia's mining sector. The success of Fuelfix and NRW collaboration on this project underscores our dedication to helping clients achieve their business goals through efficiency, innovation, and sustainability.

**Two Pathways,
One Goal**



This project aligns with our [Two Pathways, One Goal Strategy](#) and involves creating and implementing solutions that offer opportunities to lower carbon emissions while ensuring efficient operations and achieving better environmental results.

Contact Fuelfix and Tanks2Go today for flexible energy and emissions solutions to manage current fuel consumption and transition to green energy solutions.

Discover how we can help you lower your emissions whilst reducing operational costs with our Go-Greener range



Fuelfix offers a versatile range of Battery Energy Storage System (BESS) solutions, designed to meet a variety of power applications.

These adaptable units come in a wide range of power outputs, making them suitable for both substituting and complementing existing power generators.