

## ABOUT US

GGE Consulting Engineers, established in Perth in 2022, is an engineering firm specializing in green energy & renewable energy fields. They offer services like fitness assessments, design verification, project management, and product development. GGE has a commitment to excellence, completing jobs on time and budget.

BATTERIES

WIND

SOLAR

GEOTHERMAL

HYDRO

NUCLEAR

## OUR CORE PURPOSE

GGE is committed to providing top-notch engineering solutions to clients, based on core values of integrity, customer focus, collaboration, safety, quality, continuous improvement, and respect. The company values its employees and fosters a culture of innovation and inspiration. With world-class skills and experience, GGE applies these values to all their jobs.

## WHY GGE?

### OUR EXPERTISE

*Design  
Delivery*

#### **Commissioning**

Our services focus on helping companies become more sustainable. Through keeping up with the latest news and changes in the mechanical, engineering, mining, electrical, and design fields.

### GLOBAL INDEPENDENT CONSULTANT

Since 2022  
Australia  
Africa  
Asia  
Europe  
Middle East  
North America  
South America

### OUR MISSION

Our mission is to help create sustainable practices in the metallurgy and engineering fields. This included assistance with:

**Consumer Advice**

**Emerging Technologies**

**Remote Sites**

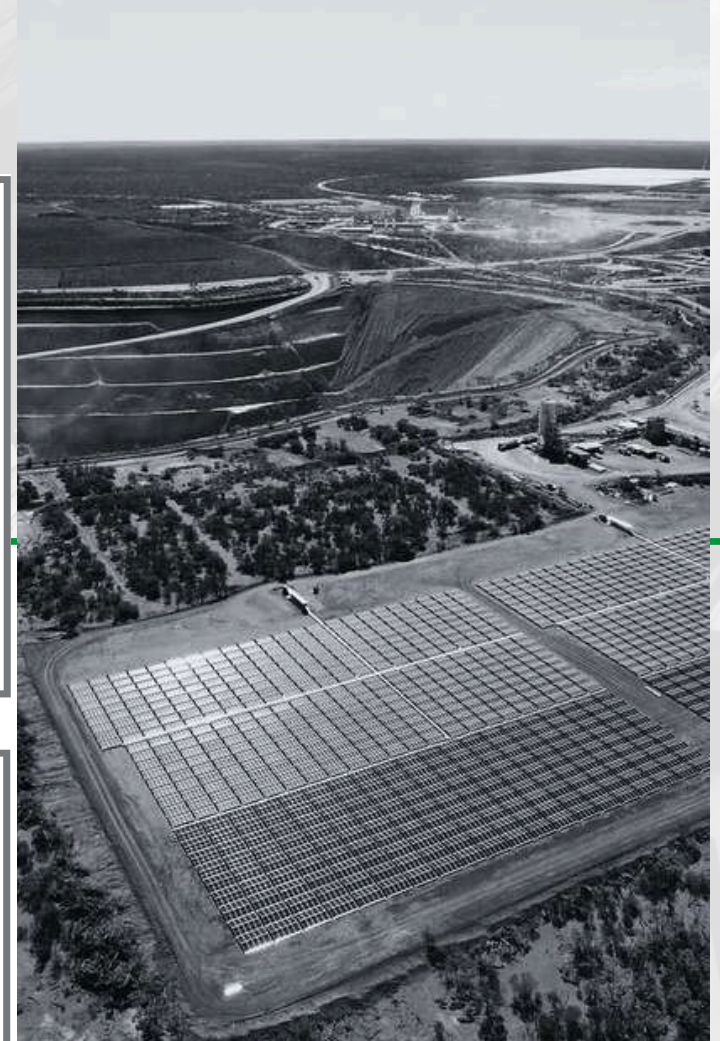
**Green Energy**

### TEAM WITH EXPERIENCE

GGE Engineering employs skilled professionals, recognizes engineering qualifications, and is a member of industry professional bodies. They prioritize ongoing professional development to maintain industry relevance and application.

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# OUR CAPABILITIES

## BATTERIES

As an energy storage solution, battery technology is used to store solar & wind energy in the form of electricity so that the electricity can be used day, night, or on overcast days when the energy sources are not in use. This includes;

- Lithium Ion Batteries
- Vanadium Redox Flow Batteries
- Battery Management Systems (BMS)

## WIND

Wind turbines are used in mining sites, providing clean, non-polluting energy. They are often repurposed from abandoned mines, offering environmental, economic, & social benefits. Wind farms require more minerals than fossil fuel-based sources, & their blades are non-renewable & non-recyclable. Communication & collaboration with industry professionals are crucial for successful repurposing.

## HYDRO

Hydrogen can be used in mining operations due to its quick refuelling times, high energy density, & versatility. It can be classified into:

1. **Green hydrogen:** using renewable resources like wind or solar.
2. **Grey hydrogen:** using fossil fuel combustion.

Hydrogen can be used in transportation, production facilities, & site power, reducing the need for electrical batteries.



## GEOTHERMAL

Geothermal is a reliable, efficient, & environmentally friendly solution for the mining industry. It reduces operating costs, offers predictability, & allows direct heating & cooling for mineral recovery. Future opportunities include:

- Cost reduction
- Reducing environmental impact
- Flexibility due to long-term nature

## SOLAR

Solar panels reduce emissions and environmental risks which is why mining companies are increasingly adopting for mine sites. While initial costs may be high, long-term benefits include reduced maintenance, improved site resilience, & reduced carbon emissions. Combining solar & diesel generators reduces power outages & reliance on fossil fuels, making solar a sustainable & eco-friendly option for mining.

## NUCLEAR

Nuclear energy is a form of energy released from the nucleus of atoms, produced through fission or fusion. It is harnessed today for electricity production, with fusion technology currently in the R&D phase. Nuclear power plants use uranium-235 to fuel chain reactions, producing heat & electricity. Uranium enrichment increases the likelihood of fission, & waste is managed accordingly. Nuclear power plants are low-carbon, producing one-third of the world's carbon-free electricity, making them crucial in meeting climate change goals.

# SERVICES

## DESIGN

- Integrated Design
- Sustainable Power Systems
- System-of-Systems Approach
- Remote Mine sites
- Hybrid Microgrids

## DELIVERY

- Renewable Energy Delivery
- Make renewable energy technology a global public good
- Improve global access to components and raw materials
- Level the playing field for renewable energy technologies
- Shift energy subsidies from fossil fuels to renewable energy
- Triple investments in renewables

## COMMISSIONING

- **Pre-Commissioning:** Involves testing and inspection activities to confirm project construction. Handing over checks for supply & installation of plant sections. Equipment is identified with a blue tag at the end of pre-commissioning.
- **Cold (Wet) Commissioning:** Simulation of plant operation using water to test equipment, piping, electrical interlocks, alarms, instrumentation, control systems, & sequence stops. Local commissioning teams work with central management. Equipment is identified with a green tag.
- **Hot (Ore) Commissioning:** Process undertaken by the Owner to bring a project into service. Involves safe water runs, removal of orifice plates, & ramping up feed tonnages. Performance is monitored at each feed rate.

