BBE comprises a team of experienced professional consulting engineers, now fifty strong, who are leaders in mine ventilation, refrigeration and cooling practices; measurement and control of underground pollutants (dust, diesel, methane, radiation, etc.); energy optimisation and energy recovery; and computer modelling and software for ventilation and cooling networks. BBE has built an excellent international reputation since its inception in 1989, through the dedication and professionalism of the company’s mine ventilation, refrigeration and cooling solution specialists.

BBE Consulting is a specialised mine ventilation, mine cooling and refrigeration consultancy with over 25 years’ experience gained in the deepest and hottest mines in the world. BBE operates world-wide in all types of mines and different mining methods, and has contributed significantly to developing state-of-art technologies and strategies, the evaluation and implementation of novel cooling systems and the introduction of novel mining methods.

BBE Consulting’s highly specialised and experienced consulting engineers work alongside international mining clients to provide a comprehensive suite of services including conceptual investigations, bankable technical feasibility studies, due diligence investigations and competent persons reports, analysis of alternative ventilation and cooling distribution systems, selection of the optimum system, detailed engineering specifications, computer simulations, applied research, audits of ventilation and cooling networks, and training courses.

BBE Projects delivers complete turnkey designed, engineered and constructed projects in the fields of mine ventilation, refrigeration and cooling. Particular areas of expertise include refrigeration and bulk air cooling stations, main fan stations, energy saving schemes and thermal storage installations. All manner of projects are undertaken from greenfield sites to plant extensions and upgrades. As a totally independent company, BBE Projects is able to offer the optimal solution using the best combination of selected equipment, tailor-made to each client’s specific requirements.

Beyond our extensive footprint in South Africa, including installations at 2 000 and 3 000 m below surface, we have successfully completed large refrigeration projects in Zambia, Tanzania and Ghana.
Expertise and Experience

BBEnergy’s core expertise and competency is power and energy management in the area of mine ventilation, refrigeration and cooling. The company is registered as an ‘Energy Services Company’ (ESCO) with the South African national power supply company, ESKOM, reflecting BBEnergy’s technical competency and financial sustainability in the field of energy efficiency and load-shift management for mine cooling, refrigeration and ventilation systems. BBEnergy also has experience with energy recovery systems such as Pelton wheel turbines, reverse running pump turbines, three-chamber pipe-feeder systems, and thermal storage using ice banks, submerged water bladders and thermal stratification in dams.

BBE has developed South Africa’s first 100% designed and built linear Fresnel CSP (concentrated solar power) system for process heat.

BBE Australasia is BBE’s latest expansion initiative, offering a dedicated service to the mining industry in the greater Asia-Pacific region from its Perth base. With full access to the knowledge, capabilities and capacity of the BBE Group resources, encompassing more than 30 years’ international experience in mine ventilation, refrigeration, energy management and associated health and safety, BBE Australasia can provide project-specific solutions, from conceptual investigations, through technical feasibility studies, preparation of detailed engineering design drawings and specifications, to EPCM execution implementation and commissioning.
VUMA is a 3D interactive network simulation programme designed and developed to assist mine ventilation engineers and practitioners to plan, design, operate and control ventilation and cooling systems.

BBE are the driving force, co-developers and managers of the mining industry’s customised software for the analysis of mine ventilation networks, for airflow and contaminant tracking, with emphasis on full thermodynamic solutions for refrigeration and cooling systems in deep hot mines.

The VUMA suite of software now extends to VUMA-network, VUMA Coal, VUMA-coolflow and VUMA-live. VUMA products are based on current research and development, and use state-of-art procedures and technology.

BBE is able to customise all of these software products to suit any combination of mining method and orebody.

BBE Laboratory, established in 2008, is a specialised analytical laboratory for analysis of airborne pollutants in mine atmospheres. Our main activity is around the quantification of respirable crystalline silica (RCS). The laboratory holds a SANSAS ISO/IEC 17025:2005 accreditation that ensures quality systems and technically competent staff are deployed and that the results are valid, accurate and traceable. We pride ourselves in a fast, professional service.

Services include:
- Gravimetric measurement
- Filter cassette preparation
- XRD (X-ray Diffraction)
- FTIR (Fourier Transform Infra-Red)