VERTECH GROUP

GEO OCEANS
REMO
SONOMATIC
ABSEIL ACCESS
AUAV
aps

CAPABILITY STATEMENT

RENEWABLE ENERGY

THE PURPOSE

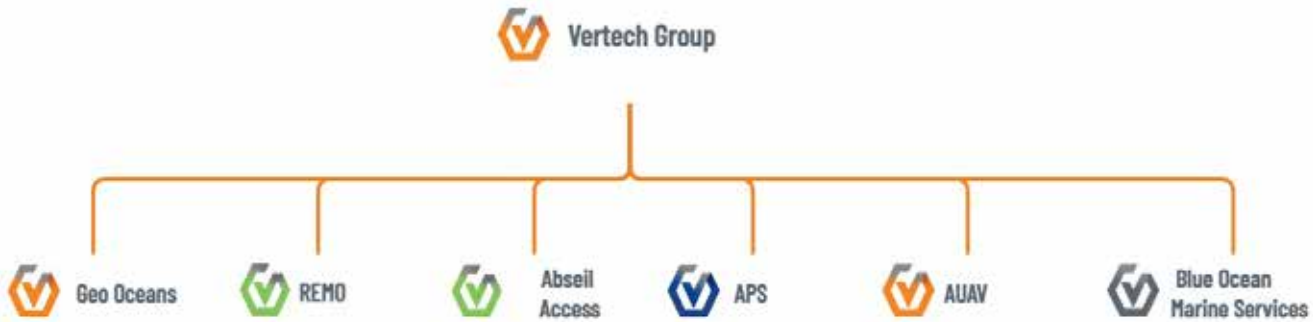
This document will assist our clients and the supply chain in understanding our group operating structure and a high-level understanding of the benefits, services, and specialist packages associated with our renewables services.

COMBINED SERVICES

Vertech Group is an Australian leader in renewable energy services. Our services include project management, Non-Destructive Testing (NDT), drone inspections, 3D modelling, and maintenance for wind farms, solar installations, and hydroelectric facilities. We also offer services for energy storage systems. Our commitment to enhancing Australia's renewable energy sector contributes significantly to its sustainable development and environmental protection.

Our group comprises complementary and specialist service providers assisting us in innovation and project delivery across the renewable energy landscape. Geo Oceans excels in advanced remote sensing and subsea inspection for offshore wind farms. Sonomatic is a global leader in specialised NDT for solar and wind energy components. AUAV delivers specialist UAVs, drones, and 3D modelling for site analysis and maintenance, and Blue Ocean Marine Services are experts in deploying Autonomous Underwater Vehicles (AUVs) and Autonomous Surface Vehicles (ASVs) for hydroelectric and marine energy assessments.

As a cohesive unit, we provide an unparalleled array of services and packages tailored to the needs of each client and their specific renewable energy project. Regardless of the scope, we offer the best, including expertise in specialist access solutions, NDT and inspection, high mobility fabric maintenance, composite wraps, geophysical, meteorological, and environmental surveys, AUV, ASV, UAV survey and inspection for a comprehensive approach to renewable energy development and maintenance.



RENEWABLE ENERGY

Energy is one of the most basic requirements in today's world, and our dependence on electrical energy continues to grow yearly. Through advancements in technology and our enhanced understanding of our impact on the planet, there is a global movement towards renewable energy resources to reduce our environmental impact and make our energy consumption sustainable.

Vertech group is passionate about being at the forefront of this global movement towards a sustainable future and supporting the construction, maintenance and ongoing inspection of the renewable energy sources of the future.

The Vertech Group includes Abseil Access in New Zealand, whose service lines support projects across hydroelectric plants, geothermal plants, and biomass plants. Our specialist wind turbine company, REMO Technical Services, specialises in turbine installation, turbine maintenance, and turbine inspection. AUAV are based across Australia, the USA, and the UK and deliver UAV, terrestrial surveying, and 3D special digital twins. When combined with Vertech's inspection, RDVI robotics, and NDT capabilities, we can offer an unparalleled capability to the Asia Pacific renewables sector.

GROUP ACCREDITATIONS

ISO 9001:2015
ISO 14001:2015
ISO 29001:2010
ISO 45001:2018
ABS Approved Supplier for UAV
ABS Remote Inspection Techniques (ROV)
BV Remote Inspection Techniques
Vertech IRATA Operator
LR Thickness Measurements of Hull Structure
NATA Lifting and Lifted Inspection
NATA Pressure Vessel Inspection
NATA NDT Inspection
CASA UAV Accreditation

**HIGH QUALITY WORK.
FIRST TIME, EVERYTIME.**

REMO

REMO Technical Services specialises in turbine installation, maintenance, and inspection. We offer fully managed turnkey solutions with extensive experience in the wind and renewable energy industry. Our reputation is built on the successful execution of major projects across Europe. We provide high-quality services, including maintenance, repairs, and inspections. We use world-renowned best practices and unparalleled experience to offer efficient, tailored solutions to the renewable and wind sectors.

ABSEIL ACCESS

Abseil Access specialises in comprehensive services for the renewable energy sector, focusing on wind farms, hydroelectric, and geothermal plants in New Zealand. Our expertise includes a range of specialised coatings and corrosion surveys, concrete condition surveys, welding and mechanical repairs, and advanced non-destructive testing; all performed using specialist and rope access techniques. We are dedicated to supporting renewable energy facilities' construction, maintenance, and repair needs, ensuring their optimal performance and longevity.

aps

APS offers comprehensive renewable energy services, focusing on constructing, maintaining, and inspecting wind, solar, and hydroelectric power systems. Our team applies advanced technology and expertise to ensure efficient and safe operations. We provide a range of services tailored to meet the specific needs of each renewable energy project, demonstrating our commitment to sustainable energy solutions.

GEO OCEANS

Geo Oceans offers specialised renewable energy services, focusing on innovative subsea inspection systems and advanced technology. Our services include marine growth removal, biosecurity, construction support, habitat mapping, 3D modelling, and various NDT methods, emphasising efficiency and client satisfaction. Part of Vertech Group, we collaborate with industry experts for comprehensive renewable solutions.

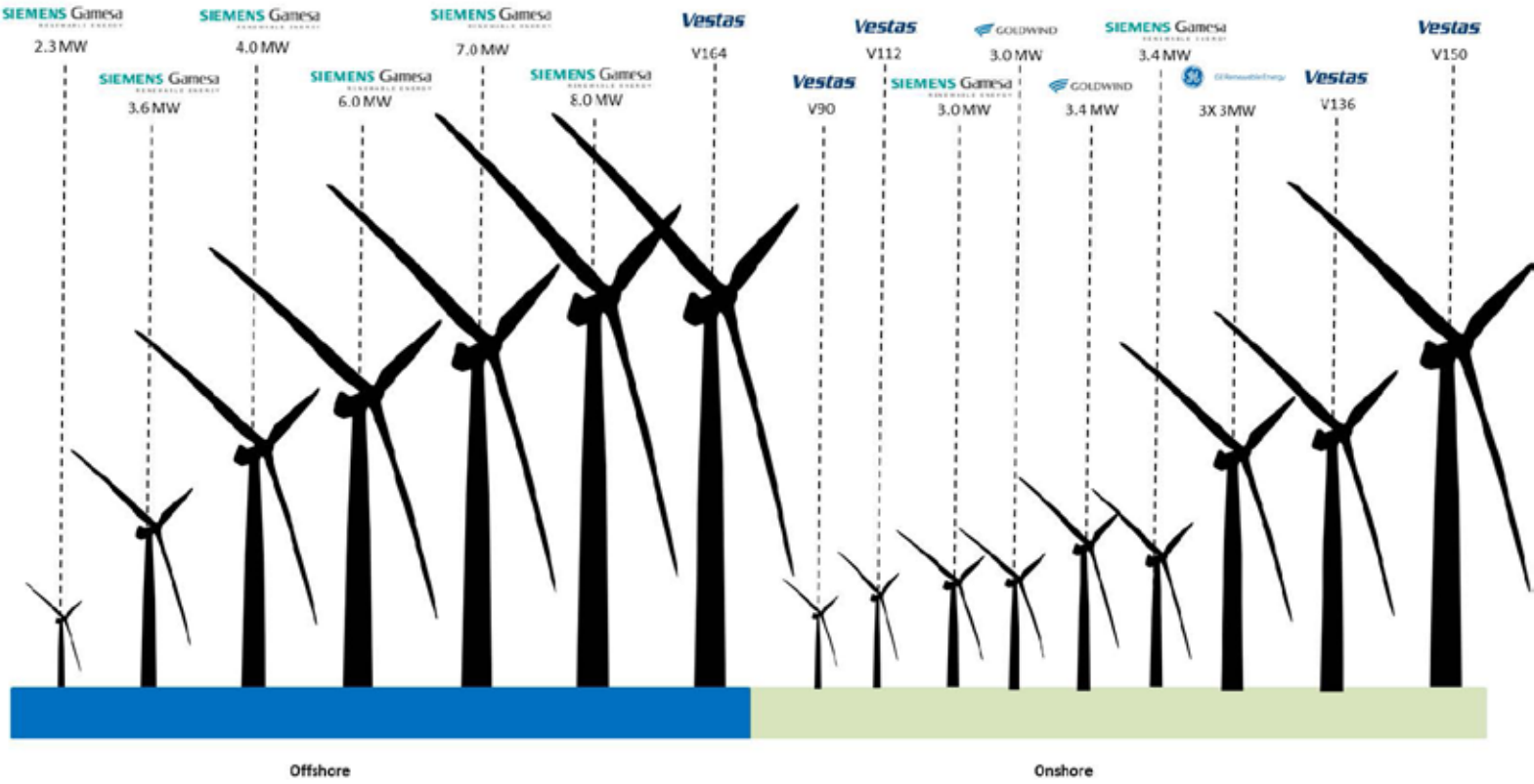
SONOMATIC

At Sonomatic, we specialise in Non-Destructive Testing (NDT) solutions, particularly for the wind energy sector. Our expertise encompasses a range of services designed to enhance the performance and efficiency of wind turbines throughout their lifecycle. We employ advanced techniques such as ACFM, Phased Array (PA) bolt inspections, Phased Array Ultrasonic Testing (PAUT), and Time of Flight Diffraction (TOFD). These methods enable us to inspect critical turbine components thoroughly, ensuring reliability and safety while offering the advantages of rapid screening, in-situ assessments, and comprehensive data recording for future reference.

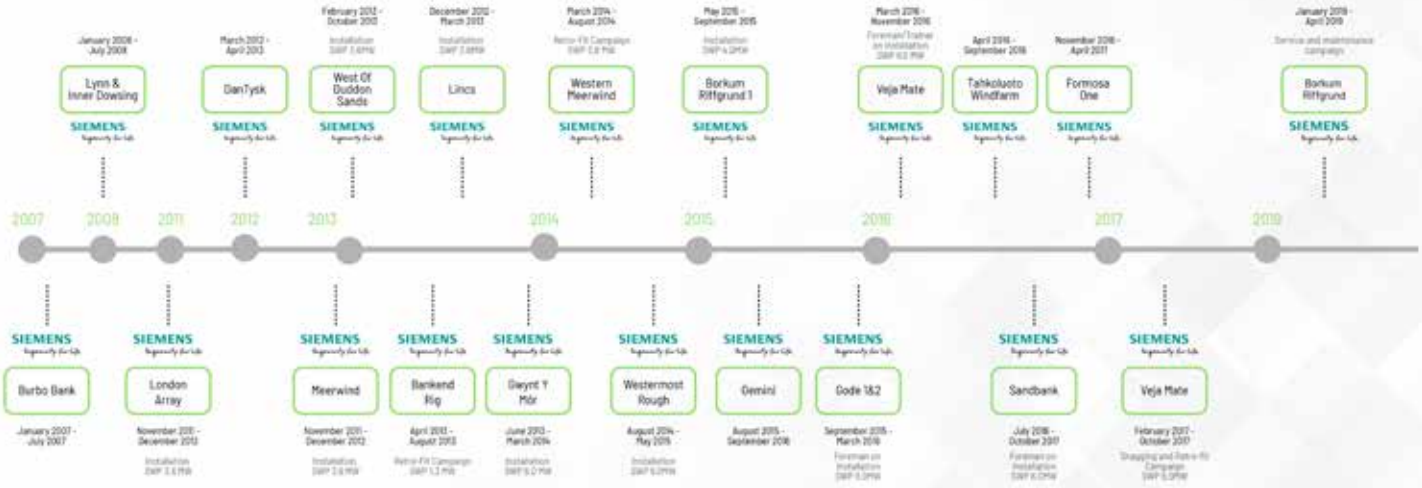
AUAV

AUAV has been pivotal in the renewable energy sector, especially in wind and solar energy developments. We specialise in topographical land surveys for developers and asset monitoring. Our services include drone survey and inspection, aiding development and maintenance. Notably, they utilise cutting-edge technology and partner with a leader in PV thermography for analysis and reporting. Our experienced team operates in regional, remote, and international locations, ensuring all projects are backed by thorough training and comprehensive risk assessments.

WIND ENERGY EXPERIENCE



UK / EU Offshore Past Project Experience



WIND ENERGY PROJECT EXECUTION

YANDIN & WARRADARGE WIND FARM BLADE REPAIRS

Following the completion of the recommissioning scope at Warradarge, REMO was engaged to support a blade repair campaign at both sites. We provided turbine blade repair services and inspection, maintenance and repair services (IMR) for Vestas.

WARRADARGE WIND FARM RECOMMISSIONING

In 2021, REMO mobilised an experienced crew to Warradarge to to execute the repair and recommissioning of a WTG following a lightning strike to a blade and resulting damage to the nacelle and hub. Despite COVID-19 measures, REMO was able to mobilise a full crew from the UK & Australia to complete the work on time and within budget.

YANDIN & WARRADARGE WIND FARM MAJOR COMPONENT EXCHANGE

Following the completion of the recommissioning scope at Warradarge, REMO was engaged to support retrofit campaigns at WDWF and Yandin. REMO teams were responsible for the completion of snagging activities and ladder section replacements utilising rope access.

TURITEA WIND FARM INSTALLATION

REMO supported the installation of V112 turbines on a labour supply basis. The scope covered all aspects of installation and commissioning to assist with the acceleration of the project. REMO also assisted in the labour supply of an experienced team to complete this project.

HYDROELECTRIC EXPERIENCE

Vertech Group, primarily through Abseil Access Ltd., aims to provide a broad spectrum of specialised services to the hydroelectric sector, focusing on maintenance and inspection tasks within challenging and demanding environments. Our expertise encompasses conducting thorough coatings and corrosion surveys, which are essential for upholding the structural integrity of hydroelectric infrastructure. We are committed to employing innovative corrosion prevention methods, including installing sacrificial anodes and applying advanced monitoring systems for effective cathodic protection.

Our capabilities extend to offering comprehensive turnkey access solutions for inspecting vertical penstocks and other typically difficult-to-access structures. Our services include strategic access and rescue planning, detailed visual inspections, core sampling, concrete condition mapping, and erosion monitoring. These services are integral to hydroelectric installations' ongoing maintenance and condition assessment.

Understanding the unique operational constraints often encountered in hydroelectric projects, we are equipped to respond rapidly and effectively. Our team specialises in promptly identifying and treating corrosion sites, applying protective coatings, and utilising specialised equipment in confined spaces. We are adept at navigating the unique challenges associated with working at heights, in poorly ventilated environments, or with hazardous materials.

We are dedicated to providing safe, efficient, and innovative solutions within the hydroelectric industry. Our approach is characterised by precision and technical expertise, ensuring we meet our clients' complex challenges with reliable and professional service. Our commitment to excellence underpins our efforts to support hydroelectric facilities' longevity and optimal functioning.

- Surveys for coatings and corrosion
- Penstock cathodic protection inspections
- Concrete condition surveys and core sampling
- Sacrificial anodes inspection and replacement
- Welding and mechanical repairs
- Specialist and rope access services
- Confined space entry and management
- Rescue planning and rescue teams
- Advanced and conventional NDT (Non-Destructive Testing)
- Drone/UAV surveying

HYDROELECTRIC PROJECT EXECUTION

MANAPOURI HYDROPOWER STATION INSPECTION

The Manapouri hydroelectric power station has seven 200m vertical penstocks that run through rock to feed the underground turbines. Inspecting these penstocks is complex, but Abseil Access has developed a turnkey solution that Meridian Energy has used for almost 20 years.

An initial concrete condition assessment included core samples and detailed mapping. A program of inspections was then developed to monitor the ongoing condition. Inspections included access planning, visual inspections, core sampling, concrete condition mapping, and erosion monitoring.

Inspecting underground penstocks requires substantial planning and experience. Abseil Access is proud to have provided access and inspection solutions to the Manapouri hydroelectricity station and to be a part of this engineering feat. Despite the challenging environment, Abseil Access achieved electrical core drilling in a dark and wet environment 200m underground.

COBB POWER STATION - SACRIFICIAL ANODE INSTALL

The Cobb power scheme was constructed in the 1940s. The twin penstocks are 2.2km long and approximately 1m in diameter. Replacement of the internal coating is problematic, and TrustPower is investigating the effectiveness of internal sacrificial anodes as a corrosion protection measure.

Abseil Access Ltd was selected for the initial coatings and corrosion survey and a further corrosion pit analysis inside the pipe. The information provided was crucial to installing a corrosion prevention system.

The upper section of the penstock was chosen for a trial run of magnesium sacrificial anodes. Attachment to the inside surface is with welded studs. Trials were undertaken to ensure the proposed method would work in the long restricted pipe sections. Additional resistance and reference probes were also installed to monitor the cathodic protection.

Thirty-five anodes were successfully installed in the first 130m section within the ten-day shutdown period. All internal stud welds were tested independently, and external probe welds were done using ASME-certified welders.

KAIMAI HYDRO POWER STATION INDUSTRIAL COATING

Abseil Access Ltd surveyed the coatings and corrosion inside the steel surface of the twin penstocks during the turbine overhaul. The project was completed within five days, and all corrosion sites were marked and recorded. Power tools were used to work on these sites, and high-build epoxy was applied following an Altex specification. The top section of the concrete conduit supplying the penstocks was also inspected in 2004. Finally, projects involving confined spaces, working at heights, poor ventilation, power tools and epoxy paints are inherently dangerous.

SOLAR EXPERIENCE

AUAV, a leader in drone-based solutions, offers a comprehensive array of services tailored to the booming wind and solar energy sector. Specialising in topographical land surveys, AUAV has been instrumental in developing and maintaining large-scale solar and wind energy projects. Their expertise in drone survey and inspection services plays a vital role in the development phase and ongoing maintenance of these renewable energy assets.

Their services are designed to facilitate efficient design and regular predictive maintenance check-ups for solar and wind farms. Utilising the latest technology in partnership with the global leader in PV thermography, AUAV provides in-depth analysis and reporting. This approach ensures a low-cost, highly accurate, and comprehensive assessment of solar plants, focusing on early defect detection through regular thermographic inspections. Such strategies are essential in optimising the performance and longevity of solar installations.

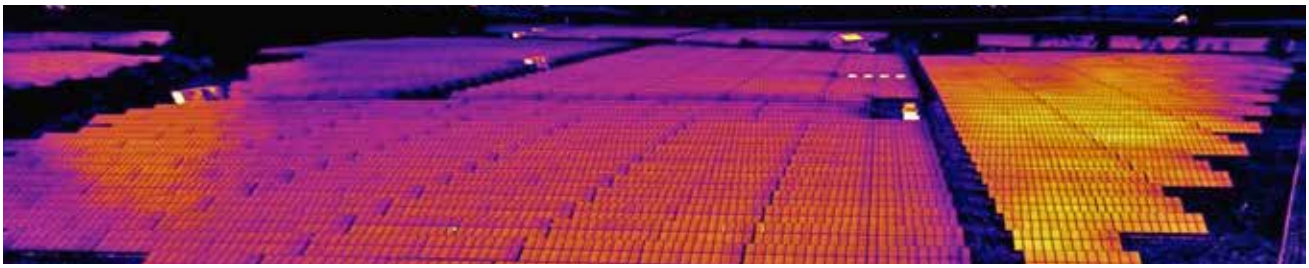
AUAV's team operates across regional, remote, and international locations and is equipped with the necessary training and equipment for remote area work. Comprehensive risk assessments are undertaken before any deployment, ensuring the highest safety and efficiency standards.

Key services offered by AUAV include:

- Due diligence data capture for asset sales.
- Pre-development topographical surveys for solar and wind farms, with extensive experience in large area coverage.
- Thermographic defect monitoring for solar farms utilises advanced methods like the Orthomosaic
- Method and Radiometric Video Method for detailed data collection.
- Wind farm blade inspections.
- Transmission line corridor surveys and inspections.
- Substation inspections.
- Construction monitoring and aerial timelapse photography.

These services are tailored to address the unique challenges of the renewable energy sector, including adverse weather conditions and the management of large volumes of high-resolution data. AUAV's commitment to providing end-to-end thermographic inspection solutions has proven to be a valuable asset in enhancing the performance and sustainability of solar plants nationwide.

SOLAR PROJECT EXECUTION



ABOVE SOLAR FARM THEMOGRAPHIC SURVEY

This project aimed to use advanced drone technology with thermal and RGB sensors for a detailed inspection, adhering to IEC standards. The goal was to identify anomalies in the solar panels using Above's Solar Grain Health Report, enhancing the farm's performance. The project combined Solar Aerial Thermography with drones, thermal imaging, and software for a cost-effective, accurate assessment of the solar plant. Two thermographic data collection methods were used: the Orthomosaic Method, which stitches thousands of thermal photos into a single image but has a lower resolution, and the Radiometric Video Method, which provides detailed, cellular-level data using thermal video and HD RGB imagery at a lower altitude, improving defect detection and temperature gradient measurement. This initiative underscored AUAV's commitment to renewable energy and the integration of advanced drone technology in large-scale solar maintenance.

ENERGY AUSTRALIA SOLAR FARM THEMOGRAPHIC SURVEY

The AUAV and Above Surveying project, aimed at providing thermographic inspections for solar plants, faced challenges like adverse weather conditions, which affected drone flight safety and data quality, and the need to manage large volumes of high-resolution images and video. Despite these hurdles, the collaboration successfully delivered a nationwide end-to-end inspection solution. Regular thermographic inspections helped identify underperforming photovoltaic modules early, enabling asset managers to refine maintenance and operations. This proactive strategy not only improved plant performance but also offered deep insights into plant health, leading to cost savings and enhanced sustainability.

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