



CAPABILITY STATEMENT

COMPANY OVERVIEW



CTECK Energy & Environment is an Australian-based company specialising in energy-efficient solutions for heating, ventilation, and air conditioning (HVAC&R) systems. Founded with a commitment to sustainability, CTECK leverages over 30 years of expertise in the energy savings and HVAC&R industry.

Their mission is to reduce energy consumption and carbon emissions by providing innovative technologies that optimise HVAC&R performance, thereby contributing to global environmental goals. A flagship innovation from CTECK is their patent-pending platform designed to enhance energy efficiency in air conditioning systems. This advanced technology exemplifies the company's dedication to integrating cutting-edge solutions that promote environmental sustainability.

CORE COMPETENCIES

Energy Optimisation Technology: CTECK employs advanced algorithms and machine learning techniques to analyse and adjust HVAC&R system operations, ensuring optimal energy use while maintaining comfort levels.

HVAC Retrofit Solutions: The company offers tailored retrofit options, such as CTECK-Lite, CTECK-Lite+, CTECK-Pro, CTECK-Pro+ and CTECK R aimed at improving the energy efficiency of existing HVAC&R systems across residential, commercial, and industrial sectors.

Sustainability Expertise: With a deep understanding of sustainable practices, CTECK assists clients in reducing their carbon footprint and achieving energy savings, aligning with broader environmental standards and regulations.

Proven Performance: CTECK's solutions have demonstrated significant energy savings—up to 25% reduction in energy consumption and corresponding decreases in CO₂ emissions—validated through real-world applications and proof-of-concept projects.

Emission Reduction: Through its intelligent energy management capabilities, CTECK systems contribute to substantial CO₂ reductions. By lowering energy consumption by 20-30%, each installation reduces the overall carbon footprint, helping businesses meet environmental sustainability targets.



PRODUCTS & SERVICES

PRODUCTS OVERVIEW

Comprehensive Product Suite

The CTECK product range includes various models that cater to different building sizes and system needs, each designed for easy integration and efficient operation.

- **CTECK LITE:** Ideal for small Air conditioning systems, High wall splits servicing small areas / rooms within a home or business (Accommodation facility).
- **CTECK LITE+:** Suitable for Medium sized Air conditioning systems in residential settings and SME businesses.
- **CTECK PRO:** Built for larger applications where Air conditioning systems service whole homes, office building, multiple rooms.
- **CTECK PRO+:** Delivers maximum efficiency in larger commercial and industrial applications.
- **CTECK R:** A dedicated solution suited to refrigeration systems, cold rooms, refrigerated displays.

Each model in the product suite shares identical physical dimensions, allowing for seamless integration into existing systems, and is powered externally by a 240/24V supply to simplify installation. Additionally, systems can come in pre-built weatherproof enclosures to suit your installation needs, ensuring durability and reliability in various environmental conditions.

Why Choose CTECK Energy & Environment?

- **Proven Results:** Our retrofit solutions have consistently delivered 20-30% energy savings, providing businesses with measurable reductions in energy costs and emissions.
- **Expert Engineering:** Our team, led by industry expert Chris Rogerson, combines decades of experience in HVAC&R system design, energy management, and sustainability to ensure the highest level of technical expertise and support.
- **Sustainability Focus:** Our commitment to reducing GHG emissions aligns with global sustainability goals, positioning CTECK Energy & Environment as a trusted partner for environmentally conscious businesses.
- **Future-Oriented Technology:** Our solutions are designed to evolve with the changing energy landscape, offering flexibility and scalability to meet the energy management needs of tomorrow.



PROVEN RESULTS

Kienan Street Residential Installation (Redland Bay, Queensland)

This installation was conducted in a large multi-generational home located in the Redland Bay area. The house featured a 15.5 kW Haier ducted air conditioning system with eight zones, including bedrooms and living spaces.

Results:

- Achieved a 21.9% reduction in energy consumption.
- Saved 57.64 kWh over a seven-day testing period.
- Reduced 39.07 kg of CO2 emissions. Resulted in \$17.86 saved during the testing period, with an annual savings projection of \$321.48
- Return on investment (ROI) of 2.8 Years



Mueller College Test Installations (Brisbane North)

This educational institution was used as a testing ground for several Mitsubishi Electric high wall and ducted systems. The installations aimed to evaluate energy efficiency in a school setting, with different zones tested for optimization.

Results:

- Test 1 on a 7.1 kW high wall system in classrooms achieved energy savings of up to 49.57% in some areas. CO2 emissions were reduced by 10.57 kg during the test, with cost savings reaching \$3.28 for the period.
- Multiple systems showed high variability in savings, with some zones achieving up to 77.7 kWh saved.



Ozcare Kittyhawk Drive Installation (Chermside, Queensland)

Another installation in a large residential home located in the inner western suburbs of Brisbane. The residence was equipped with a Daikin VRV ducted air conditioning system, designed for large-scale cooling.

Results:

- Achieved a 30.9% reduction in energy consumption.
- Saved 37.11 kWh over the testing period. Reduced 25.31 kg of CO2 emissions. Resulted in \$11.50 saved during the testing period, with projected annual savings based on continuous energy optimization.



Big 4 Holiday Park Installation (Lucinda, Queensland)

The Big 4 Holiday Park installation in Lucinda, Queensland, involved multiple cabins, each fitted with Mitsubishi Heavy Industries high wall split air conditioning systems. These units are crucial in maintaining comfort for holidaymakers in tropical northern Queensland's climate.

Results:

- Achieved energy reductions between 26.28% and 35.21% across different cabins.
- Saved between 11.99 kWh and 16.55 kWh over the testing period. Reduced 8.13 kg to 11.18 kg of CO2 emissions. Resulted in savings of \$3.72 to \$5.13 per cabin over the testing period, with annual savings projected based on peak occupancy.

These case studies demonstrate the diverse applications of CTECK technology in residential and educational environments, achieving substantial energy savings, cost reductions, and positive environmental impacts. The results highlight the scalability and effectiveness of CTECK solutions in different settings, contributing to sustainability goals.

Broad Benefits Across Multiple Sectors

Date below comes from infield installations that have been independently assessed to determine the CTECK product performance in real world applications

DETAILED MARKET RESEARCH



Residential

Reduced energy bills and improved efficiency, lowering household expenses, 25%+ average savings over the research project.



Commercial

Decreased operational costs and enhanced sustainability in retail, hospitality, and office spaces, 23% average savings over the research project.



Education

Reduced energy costs, allowing more funds for educational resources, 30%+ average over the Research project.



Health / Fitness

Fitness industry (Gyms), training and health & wellness facilities, fitness studios 35%+ average savings over the research project.



Hospitality

Hotels and tourism facilities enjoy reduced energy costs, enhancing competitiveness and sustainability, 27% average savings over the research project.



Industrial Commercial & Industrial

Manufacturing, minim, transport and logistic service 30%+ average savings over the research project.

National and International Potential



National Expansion

Adoption across Australia could lead to substantial energy and emissions savings, supporting climate action commitments.



International Impact

Globally, CTECK's technology enhances energy efficiency and reduces carbon footprints, valuable for international sustainability.

CTECK Market

CTECK Energy & Environment distinguishes itself in the market through its Unique Machine learning and intelligent technology, patent-pending solution that delivers superior energy optimisation for air conditioning systems. Unlike competitors, CTECK integrates machine learning into its platform, enabling HVAC&R systems to adjust in real time based on usage patterns, reducing energy consumption without compromising comfort. This unique capability ensures that both **CTECK Lite, CTECK Lite+, CTECK Pro, CTECK Pro+, & CTECK-R** can save between **20-25%** on energy usage, outperforming standard efficiency measures. Additionally, the company's focus on sustainability aligns with global environmental goals, offering a direct path to lower CO2 emissions and reducing greenhouse gases by up to 30kg of **CO2** per system weekly, with typical **ROI of 12 months - 3 Years**.

CTECK has also developed a comprehensive intellectual property portfolio, including patents, trademarks, and proprietary software, ensuring that its platform remains at the cutting edge of HVAC&R optimisation technology. The platform is also compatible with over 3,000 air conditioning units, reinforcing CTECK's market position as the most adaptable and effective solution for HVAC&R energy management. By focusing on fast installation (taking under 45 minutes), high return on investment (ROI), and long-term environmental benefits, CTECK stands out as a leader in energy-efficient solutions for both commercial and residential sectors.

KEY ACHIEVEMENTS

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CTECK's technology provides a retrofittable solution with over 17 million applications across Australia and New Zealand, and presents vast market opportunities in Europe, Southeast Asia, and North America. As these regions face growing energy crises and increased pressure for emission reductions, CTECK systems can be applied to over 70% of aging air conditioning systems globally. This offers a scalable, impactful solution to energy consumption challenges, directly addressing both environmental and economic needs on an international scale.

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CTECK has been included in government-funded energy efficiency programs, such as Queensland's Low Carbon Accelerator Program (LCAP). With a projected three-year ROI and partnerships with major businesses such as Gymnasiums, Accommodation & hospitality facilities, CTECK has established itself as a trusted provider in the HVAC&R optimisataion space. Its technology has been tested and validated under rigorous conditions, ensuring reliability, scalability, and long-term benefits for its clients across sectors like tourism, healthcare, and commercial real estate.

