



ECOCOMFORT™

Integrated Thermal Energy System for Buildings

POSITIONING / SYSTEM OVERVIEW V2.0

Heating & Cooling | Domestic Hot Water | Thermal Storage | Heat Recovery | Energy Management

From HVAC equipment to coordinated building thermal-energy management.

General edition for Australian partners, consultants, contractors and project discussions
Prepared by Nusfun Pty Ltd, Melbourne, Australia | September 2026

01 | CATEGORY POSITIONING

What EcoComfort™ Is

A building-level thermal-energy platform rather than a single packaged HVAC appliance.

EcoComfort™ is a configurable, water-mediated system that coordinates the generation, storage, recovery, distribution and control of thermal energy across a building.

EcoComfort™ is an Integrated Thermal Energy System for Buildings.

System function	EcoComfort approach
Generate	Reversible heat-pump unit(s) create chilled or heated energy according to building demand and control strategy.
Store	Water-based thermal storage buffers cooling or heating energy so generation and delivery do not always need to occur at the same time.
Recover	During qualifying cooling operation, available rejected heat can be redirected toward domestic-hot-water production.
Distribute	Suitable fan-coil, ducted, console or hydronic terminals deliver heating or cooling through water circuits.
Control	Sensors, schedules, tariffs, storage condition and demand are coordinated through project-specific operating logic.

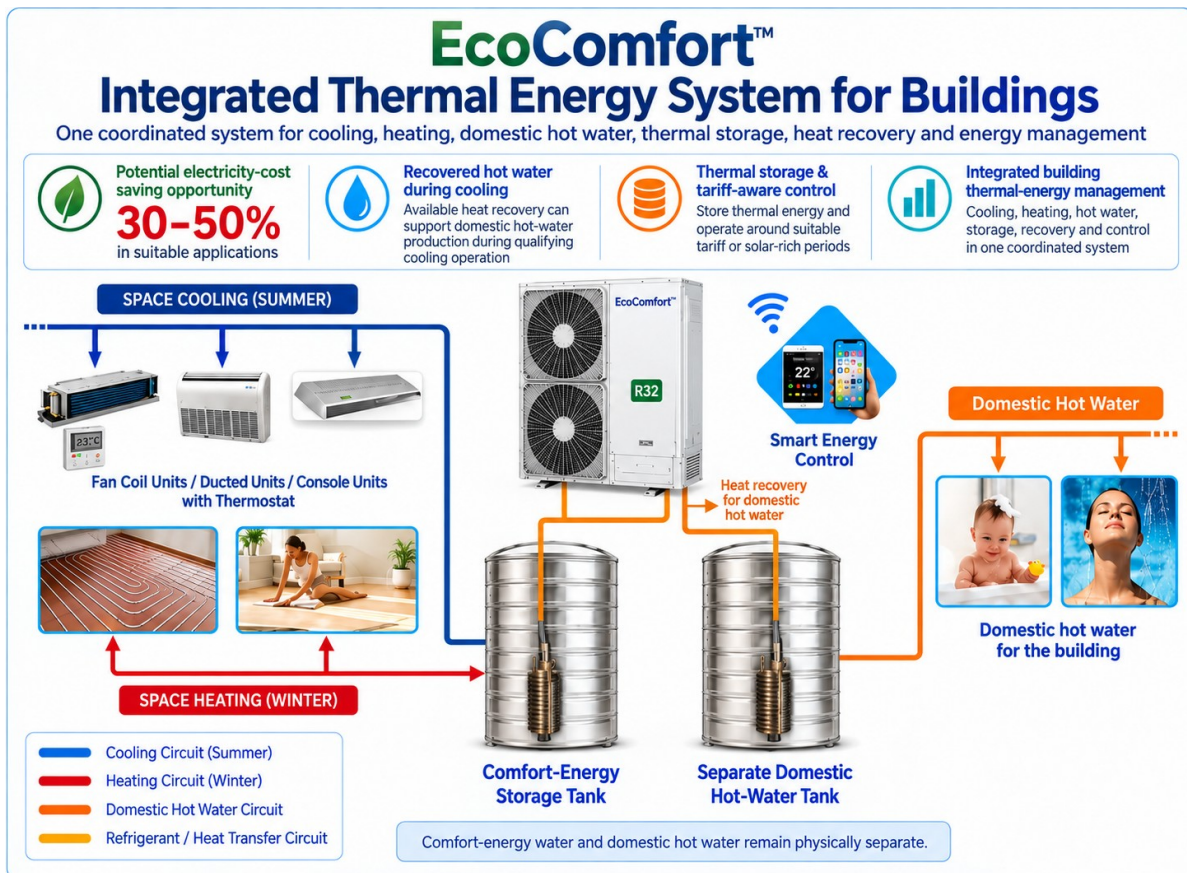
Positioning principle

EcoComfort should not be presented simply as a 'better air conditioner'. Its differentiation is the coordinated system architecture: thermal energy can be generated, stored, recovered and delivered according to the building's needs and energy conditions.

02 | SYSTEM ARCHITECTURE

One Architecture, Multiple Thermal Functions

Heating, cooling and hot water are coordinated, while comfort water and domestic water remain physically separate.



Updated EcoComfort system architecture - cooling, heating, domestic hot water, thermal storage, heat recovery and smart energy control.

Non-negotiable architecture rule: the comfort-energy tank and domestic-hot-water tank are separate and are not directly connected. Indoor comfort terminals connect only to the comfort-energy water circuit.

03 | OPERATING LOGIC

Generate → Store → Recover → Distribute → Control

The system is engineered around the building, its loads, tariffs and operating profile.

Mode	Energy pathway	Primary objective
Cooling	Heat pump charges comfort tank with chilled water; terminals draw cooling through the water circuit.	Maintain comfort while managing storage state and electricity timing.
Heating	Heat pump charges comfort tank with heated water; zones draw heat as required.	Meet room loads with appropriate flow and leaving-water temperature.
Domestic hot water	Dedicated hot-water tank is charged to project-defined setpoints and hygiene strategy.	Meet hot-water demand safely and reliably.
Cooling + heat recovery	Available rejected heat is redirected toward DHW production where conditions permit.	Use otherwise rejected heat for the recovered portion.
Storage charging	Charging is scheduled during eligible free-use, off-peak or solar-rich periods.	Shift electrical input to more favourable periods where practical.
Standby / protection	Controls maintain temperature, flow and equipment safeguards.	Protect equipment and preserve readiness.

Priority logic is project-specific and may consider zone demand, tank temperature/state proxy, DHW demand, tariff windows, onsite solar, unit staging, defrost, redundancy, noise, maximum demand and owner operating preferences.

04 | VALUE MECHANISM

Thermal Storage Changes the Timing of HVAC Energy Use

EcoComfort separates, within engineered limits, the time electricity is consumed from the time thermal comfort is delivered.

Step	Control action
1. Forecast	Estimate upcoming cooling, heating and hot-water requirements from schedules, weather and recent operation.
2. Identify window	Recognise eligible free-use, off-peak or onsite solar-rich periods.
3. Charge storage	Operate the heat pump to store chilled or heated water within engineered limits.
4. Serve building	Use stored thermal energy during higher-price periods; operate plant when required.
5. Review & optimise	Compare meter data, storage behaviour and comfort results; refine schedules and setpoints.

Commercial wording: any 30–50% figure refers only to a potential electricity-cost saving opportunity under suitable tariffs, loads, storage sizing, controls and operating conditions. It is not an automatic 30–50% reduction in total building energy consumption.

A quantified project result should be based on an agreed baseline, metering boundary, tariff simulation, commissioning data and an appropriate review period.

05 | HEAT RECOVERY

Cooling Demand Can Become a Source of Hot-Water Energy

Heat rejected during cooling can be useful when domestic-hot-water demand exists at the same time.

Condition	Project implication
Concurrent cooling + DHW demand	Strongest opportunity for useful heat recovery.
DHW tank already at target temperature	Recovery may be limited or redirected according to the control sequence.
No cooling demand	DHW requires a dedicated heating mode or another project-designed source.
High hygiene temperature requirement	Setpoints, disinfection, supplementary heating and anti-scald measures require local design.
Commercial / healthcare application	Demand diversity, redundancy, storage, recirculation and compliance require detailed hydraulic engineering.
Responsible wording for "free hot water": this applies only to the recovered portion produced during qualifying cooling operation. It does not mean unlimited year-round hot water with no energy input.	

06 | DISTRIBUTED & MODULAR ARCHITECTURE

From Single Homes to Larger Hydronic Buildings

Capacity can be divided across units, zones or subsystems instead of relying only on one central machine.

- Multiple independently connected heat-pump units can support staged capacity, zoning and planned redundancy.
- A current concept subsystem may coordinate 1–64 heat-pump units, subject to final controller and equipment documentation.
- Modularity can support staged isolation, operating-hour balancing, future expansion and clearer fault isolation where the hydraulic and controls design permits.
- For larger buildings, distributed EcoComfort subsystems may be located by floor, wing, zone or operating profile.

Strategic retrofit opportunity

Where an existing building has serviceable hydronic infrastructure, EcoComfort may provide a pathway to replace or decentralise the central chiller / heating plant while retaining suitable existing water distribution assets.

Retain where suitable	Review / replace as required
Existing hydronic pipework	Central chiller / heating plant
Selected pumps and valves	Controls and staging logic
Compatible fan coils / hydronic terminals	Incompatible terminals or pumps
Existing plant rooms / risers	Storage, heat exchangers and local plant interfaces

All retained assets require condition, temperature, flow, capacity, controls and compliance assessment before reuse.

07 | APPLICATION STRATEGY

Priority Building Segments

The strongest opportunities combine meaningful thermal loads, controllable schedules, hot-water demand or valuable existing hydronic infrastructure.

Application	Why it may fit	Early checks
High-value / large homes	Multi-zone comfort, DHW, tariff/solar coordination and premium system integration.	Loads, plant space, acoustics, electrical capacity, owner expectations.
Major residential renovation	Potential integration with retained hydronic assets and staged energy upgrades.	Existing services, access, substrate/plant constraints, shutdown limits.
Hotels / serviced accommodation	Recurring conditioning plus substantial hot-water demand and heat-recovery opportunity.	DHW peaks, recirculation, redundancy, uninterrupted operation.
Shopping malls / mixed-use	Large variable loads, zones, operating schedules and potential distributed plant strategy.	Existing hydronics, tenancy interfaces, staging, plant locations, controls.
Offices / institutional buildings	Zone-based operation, retrofit potential and central monitoring.	Operating hours, simultaneous loads, landlord/tenant boundaries.
Healthcare / aged care	Stable comfort and high hot-water demand where robust engineering is available.	Hygiene, reliability, redundancy, approvals and maintenance.
Farms / remote residences	Thermal storage may coordinate with solar-rich periods and constrained energy supply.	Electrical supply, climate, service access, water quality, backup strategy.

08 | EXISTING HYDRONIC PLANT RETROFIT

A New Pathway for Chiller-System Renewal

The retrofit proposition is not 'replace every component'; it is to evaluate what can be retained and what should be decentralised or renewed.

For suitable existing buildings, the project concept can be:

Retain viable water-system infrastructure → replace or supplement central plant → introduce distributed / modular EcoComfort generation and storage → optimise zones and controls.

Potential benefit	Engineering basis
Reduced dependence on one large central plant	Capacity may be distributed across multiple modules or zones.
Staged renewal	Plant can potentially be upgraded by subsystem where programme and hydraulics permit.
Lower long-distance thermal transport burden	Distributed plant may reduce some pumping/transport requirements, subject to actual layout and design.
Improved serviceability	Modules may be isolated or serviced in stages where redundancy and valves are designed accordingly.
Better load matching	Staging can respond to variable loads rather than operating a single oversized machine across all conditions.

This is a project-development direction, not a blanket performance claim. Feasibility depends on existing water temperatures, flows, terminal compatibility, pipe condition, controls, plant space and local engineering.

09 | CURRENT REFERENCE PLATFORM

Melbourne Demonstration & Reference Configuration

Reference information supports partner learning; final supplied equipment must be confirmed project by project.

Item	Current reference / status
Reference outdoor unit	Approximately 6 HP class in the current demonstration/reference configuration.
Refrigerant	Current reference documentation identifies R410A pre-charge; exact supplied model, charge and licensed installation requirements must be verified.
Comfort storage	Current concept uses a non-pressure water vessel; referenced operating water range is -7°C to 50°C. Final tank design is project-specific.
Indoor terminals	A residential reference concept may serve up to approximately ten terminals with diversity; actual quantity is load- and hydraulic-dependent.
Multi-unit coordination	Concept range 1–64 units per coordinated subsystem, subject to final controller/equipment documentation.
Demonstration site	EcoComfort demonstration installation at 3 Cash Street, Balwyn North, Victoria, available for partner learning by appointment.

Verification required: model numbers, rated capacities at design conditions, COP/EER, sound data, dimensions, weight, refrigerant charge, electrical input, operating envelope, certifications and warranty must be confirmed in the approved project schedule.

10 | ENGINEERING & DELIVERY

Project-Led, Not Catalogue-Led

A reliable proposal starts with building and operating data, then moves through local engineering and commissioning.

Stage	Principal activity	Output
1. Qualify	Confirm building, problem, decision maker, timing and information access.	Proceed / hold / decline.
2. Collect data	Plans, loads, bills/interval data, existing plant, DHW profile, constraints.	Information-gap register.
3. Concept review	Assess storage, heat recovery, zones, retained assets and partner resources.	Preliminary concept + risk list.
4. Local engineering	Detailed mechanical, hydraulic, plumbing, electrical, controls and structural design.	Approved project schedule and scope.
5. Commercial offer	Equipment, freight, local works, exclusions, programme, payment, warranty.	Written acceptance / PO.
6. Install & commission	Qualified installation, flushing, checks, controls setup, testing and balancing.	Commissioning records + handover.
7. Optimise & verify	Review comfort, tariff scheduling, storage, alarms, energy and maintenance.	Operating report + adjustments.

Australian delivery requires qualified local parties for regulated refrigeration, electrical, plumbing and other applicable work. Precise compliance requirements depend on the equipment, site and scope.

11 | PARTNER MODEL

Nusfun + Australian HVAC / Hydronic Delivery Partners

The preferred pathway is to validate technical and commercial fit through suitable projects.

Nusfun / product side	Australian delivery partner
EcoComfort product and system information	Customer and project access
Preliminary concept-selection coordination	Site survey, accurate loads and operating information
Equipment quotation and supply coordination	Licensed design, approvals, installation and commissioning
Product-side technical liaison	Local service, maintenance and customer support
Approved marketing and partner materials	Responsible use of claims and complete project records
Demonstration access and product learning	Field feedback and development of repeatable delivery capability

Recommended starting model

Qualified project cooperation → technical delivery partnership → repeatable local capability → regional dealer/service pathway where commercially justified.

EcoComfort is currently positioned to find Australian HVAC delivery partners rather than to bypass local contractors. Local engineering, installation, commissioning and service capability are central to the delivery model.

12 | POSITIONING FRAMEWORK

How EcoComfort Should Be Described

A consistent definition across website, product material, LinkedIn and partner discussions.

Level	Recommended wording
Category definition	EcoComfort™ is an Integrated Thermal Energy System for Buildings.
One-sentence explanation	It integrates heating, cooling, domestic hot water, thermal storage, heat recovery and energy management within one coordinated system architecture.
Value explanation	Rather than generating thermal energy only when demand occurs, EcoComfort enables thermal energy to be generated, stored, recovered and distributed according to building demand and energy conditions.
Strategic shift	From HVAC equipment to coordinated building thermal-energy management.
Avoid	Unqualified claims such as 'world's first', 'revolutionary', automatic energy-saving percentages, or unlimited 'free hot water'.

Core messaging pillars

- One coordinated thermal-energy architecture.
- Thermal storage creates timing flexibility.
- Heat recovery turns selected rejected heat into useful hot-water energy.
- Distributed modular design supports zoning, staging and retrofit pathways.
- Project-specific engineering and measured verification underpin performance claims.

EcoComfort™ | Generate. Store. Recover. Distribute. Control.

13 | NEXT-STEP PROJECT REVIEW

Information Required for a Meaningful Assessment

The objective is to identify a suitable first project and establish a repeatable Australian delivery pathway.

Information group	Initial inputs
Building	Location, use, conditioned area, plans, zones, occupancy, operating hours.
Loads	Heating/cooling calculations, diversity and simultaneous-use assumptions.
Hot water	Daily volume, peak flow, storage, recirculation, target temperatures and hygiene strategy.
Existing services	HVAC/DHW plant, water temperatures, terminals, pumps, pipework, controls and condition.
Electricity	Supply, phases, maximum demand, tariffs, interval data and onsite solar/battery.
Constraints	Plant space, access, structure, drainage, corrosion exposure, noise and service clearance.
Delivery	Programme, staging, shutdown limits, approvals, trades and commissioning responsibilities.

Suggested immediate actions

- Review the Melbourne demonstration system and record technical questions.
- Confirm the partner role: project delivery, dealer/service, consultant/specification or project introducer.
- Select one candidate project for preliminary suitability assessment.
- Exchange drawings and operating data; identify missing load, hydraulic and compliance inputs.
- Prepare a preliminary concept, responsibility matrix and commercial pathway.

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Document status: EcoComfort Positioning / System Overview V2.0. Project suitability, configuration, performance, specifications, compliance and quantified savings must be confirmed for the exact building, supplied equipment and delivery scope.